



DEPARTMENT OF THE NAVY
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From: Commander, Navy Installations Command

Subj: NAVY OVERSEAS DRINKING WATER PROGRAM ASHORE

Ref: (a) See Appendix B

1. Purpose

a. To establish criteria and requirements that overseas U.S. Navy installations must meet to ensure the quality of drinking water overseas, the proper operation of drinking water systems and personnel in charge of drinking water systems are, at a minimum, as competent and qualified as operators certified within the U.S. regulatory framework. Commander, Navy Installations Command (CNIC), as the Navy Executive Agent (EA) for Drinking Water Ashore, directs adherence with this manual and the requirements contained therein as the standards for overseas installations to adopt and implement.

b. This manual implements and updates the Navy Overseas Drinking Water Program requirements, improving the management of drinking water system delivery. This manual also implements requirements for the evaluation of overseas drinking water (ODW) system performance and to ensure drinking water system operators in responsible charge and assistant operators in responsible charge are qualified, competent and certified.

c. This manual has substantial revisions that should be read in its entirety. Significant changes were made to clarify and update surface water treatment (SWT) requirements, laboratory policy requirements, implementation of emergency response plans and tabletop exercises, roles and responsibilities, reporting requirements, applicability, and increased monitoring and compliance for ODW systems. Specifically, this manual revision:

(1) Updates applicability requirements for overseas locations that are subject to the Navy ODW Program, providing examples of these locations and clarifying that these locations may include non-contiguous installation properties under the control of the installation Commanding Officer (CO) (2)

(2) Updates equivalency requirements for National Sanitation Foundation/American National Standards Institute (NSF/ANSI) Standard 61 certified materials.

(3) Updates SWT requirements to enhance implementation consistency across all installations including new requirements for a WQOC-approved SWT compliance plan, revised alternative compliance options, and removing the option to consider treated water from a Host Nation as raw source water when considering compliance options.

(4) Enhances and clarifies review and oversight processes for use of Defense Centers for Public Health-Aberdeen, ISO/IEC 17025, and State-accredited laboratories.

(5) Updates laboratory proficiency testing (PT) requirements and allows flexibility to meet PT requirements for Navy on-site compliance laboratories with staff limitations.

(6) Adds requirements for Risk and Resilience Assessments, Emergency Response Plans, and Table-Top Exercises to align with American Water Infrastructure Act (AWIA).

(7) Clarifies reporting requirements for potential actions or incidences that indicate the water is not Fit for Human Consumption (FFHC), or there is a risk of not maintaining FFHC status, when those incidences do not fall under regular required sampling and Maximum Contaminant Level exceedances.

(8) Increases oversight of ODW systems and open significant deficiencies by adding requirements for system self-assessments and enhancing the Certificate to Operate (CTO) process to enforce compliance with corrective action timelines for significant deficiencies.

(9) Provides guidance on how Region Water Quality Boards and Installation Water Quality Boards can request a full CTO outside of the regulator three-year sanitary survey cycle.

2. Cancellation. CNIC M-5090.1A and CNICINST 5090.1B.

3. Scope and Applicability. This manual applies to all overseas U.S. Navy/CNIC installations, and installation properties outside the continental United States and its territories.

4. Policy

a. CNIC, as the Navy EA for Drinking Water Ashore, will use the Navy Overseas Water Quality Oversight Council (WQOC) as the entity responsible for monitoring and ensuring compliance with this manual.

b. Navy regions with installations overseas and all Navy overseas installations will comply with this manual to:

(1) Improve the overall management of overseas drinking water delivery and to ensure the quality of drinking water overseas.

(2) Ensure the completion of recurring sanitary surveys and system auditing, and the issuance of a CTO signed by the Region Commander (REGCOM).

(3) Ensure operators in charge of drinking water systems are certified with an appropriate level of competency equivalent to that required in the U.S. regulatory framework, based on training, examination, experience, education and continuing education.

5. Actions

a. CNIC Headquarters will:

(1) Chair the WQOC.

(2) Enforce this manual, providing additional guidance and interpretation to Navy regions, as needed.

(3) Oversee implementation and compliance with this manual, via the WQOC.

(4) Maintain and update this manual as needed.

(5) Evaluate compliance with this manual through the review of external and internal environmental audit results and CNIC external sanitary surveys.

b. REGCOMs will:

(1) Chair the Region Water Quality Board (RWQB).

(2) Implement and comply with this manual through the RWQB in collaboration with Naval Facilities Engineering Systems Command (NAVFAC) and Navy Bureau of Medicine and Surgery (BUMED) personnel.

(3) Plan, program and budget for requirements to comply with this manual.

(4) Evaluate installation compliance with this manual through external and internal environmental management system audits, external triennial sanitary surveys, and RWQB self-assessments performed every 1.5 years after systems' last triennial sanitary survey.

(5) Ensure training and qualification requirements for drinking water system operators in responsible charge, assistant operators in responsible charge, and operations and maintenance personnel are met per this manual and the guidance contained in the referenced standards.

c. Installation COs will:

(1) Chair the Installation Water Quality Board (IWQB).

(2) Implement and comply with this manual through the IWQB, in collaboration with NAVFAC and BUMED personnel.

(3) Evaluate compliance with this manual through external and internal environmental management system audits, external triennial sanitary surveys, and annual IWQB self-assessments.

(4) Document compliance with this manual using the Navy Overseas Drinking Water Data Repository or any new database platform as directed by CNIC.

d. NAVFAC Headquarters and Region Facility Engineering Commands (FECs) will support execution of this manual in collaboration with IWQBs, RWQBs, and the WQOC.

6. Records Management

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the Department of the Navy Assistant for Administration, Directives and Records Management Division portal page at <https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx>.

b. For questions concerning the management of records related to this manual or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).

6. Review and Effective Date. Per OPNAVINST 5215.17A, CNIC (N4) will review this instruction annually on the anniversary of its effective date to ensure applicability, currency, and consistency with Federal, Department of Defense, Secretary of the Navy, and Navy policy and statutory authority using OPNAV 5215/40, Review of Instruction. This instruction will be in effect for 10 years unless revised or cancelled in the interim and will be reissued by the 10-year anniversary date if it still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.


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Releasability and distribution:

This manual is cleared for public release and is available electronically only via CNIC

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SharePoint, <https://flankspeed.sharepoint-mil.us/sites/CNICGlobalHub/directives/>.

RECORD OF CHANGES

Brief Description of Approved Changes	Date of Change	Pages Affected	Change Approved by (CNIC/ED)
Updated Applicability requirements to clarify overseas locations that are subject to the Navy Overseas Drinking Water (ODW) Program; providing examples of these locations and clarifying that these locations may include non-contiguous installation properties under the control of the installation Commanding Officer (CO).	12/13/2024	1-1	CNIC
Clarifies that the Navy ODW Program treats all drinking water systems as public water systems, regardless of their population size or other system classification.	12/13/2024	1-2	CNIC
Adds a formal role of a regional Technical Advisory Board (TAB) lead liaison/facilitator.	12/13/2024	1-3	CNIC
Clarifies requirements for Region Water Quality Boards (RWQBs) and Installation Water Quality Boards (IWQBs) to meet on at least a quarterly basis.	12/13/2024	1-7	CNIC
Updates equivalency requirements for National Sanitation Foundation/American National Standards Institute (NSF/ANSI) Standard 61-certified materials when materials cannot be procured locally, to include allowing use of Underwriter’s Laboratory (UL)-certified chemicals.	12/13/2024	2-14	CNIC

Brief Description of Approved Changes	Date of Change	Pages Affected	Change Approved by (CNIC/ED)
Updates Surface Water Treatment (SWT) requirements to streamline the process for all installations including a requirement for a WQOC-approved SWT compliance plan and revised alternative compliance options. These updates include removal of the filtration avoidance compliance option for systems not in full control of the source water.	12/13/2024	2-10	CNIC
Broadens RWQB responsibilities by allowing the Region to review and approve installation sampling plans and installation requests to transition to reduced monitoring of specific drinking water parameters.	12/13/2024	2-7	CNIC
Adds requirement that SWT compliance plans must be approved before the TAB is approached to consult on implementation.	12/13/2024	2-10, E-2	CNIC
Incorporates a two-pronged approach to public notification requirements for ODW systems out of compliance with SWT requirements.	12/13/2024	2-11, 2-12	CNIC
Updates the laboratory validation expiration date for third-party laboratories from “one year from the date of signature” to “two years from the date of signature.”	12/13/2024	M-3	CNIC
Decreases the frequency that the laboratory authority requires PT results for third-party laboratories from annual to biennial.	12/13/2024	4-3	CNIC
Enhances and clarifies review and oversight processes of Defense Centers for Public Health-Aberdeen, ISO/IEC 17025, and State-accredited laboratories.	12/13/2024	4-6	CNIC

Brief Description of Approved Changes	Date of Change	Pages Affected	Change Approved by (CNIC/ED)
Clarifies Proficiency Testing (PT) requirements and allows flexibility to meet PT requirements for Navy on-site compliance laboratories with staff limitations	12/13/2024	4-7	CNIC
Removes the annual PT requirement for bench laboratories; however, if annual PTs are not performed, they must establish a written procedure for monitoring the validity of results.	12/13/2024	4-7	CNIC
Removes the requirement for a regional laboratory Quality Assurance manager.	12/13/2024	N/A	CNIC
Clarifies reporting requirements for potential actions or incidences that indicate the water is not Fit for Human Consumption (FFHC), or there is a risk of not maintaining FFHC status, when those incidences do not fall under regular required sampling and Maximum Contaminant Level exceedances.	12/13/2024	5-4	CNIC
Adds requirements for Risk and Resilience Assessments, Emergency Response Plans, and Table-Top Exercises to align with the American Water Infrastructure Act (AWIA).	12/13/2024	5-6	CNIC
Increases oversight of ODW systems and open significant deficiencies by adding requirements for system self-assessments and enhancing the Certificate to Operate (CTO) process to enforce compliance with corrective action timelines for significant deficiencies.	12/13/2024	8-8, 9-5	CNIC
Clarifies that all ODW systems are required to achieve a full CTO as the baseline requirement.	12/13/2024	9-8	CNIC

Brief Description of Approved Changes	Date of Change	Pages Affected	Change Approved by (CNIC/ED)
Provides guidance on how RWQBs and IWQBs can request a Full CTO outside of the regular three-year sanitary survey cycle.	12/13/2024	9-10	CNIC



Navy Overseas Drinking Water Program Ashore Manual

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CHAPTER 1 PROGRAM MANAGEMENT AND OVERSIGHT

1. Scope

a. This manual describes a clear standard, able to be implemented overseas, that meets Secretary of the Navy (SECNAV) and Chief of Naval Operations (CNO) direction, and fills latency gaps that exist in references (a), (b) and in host nation Final Governing Standards (FGS). This manual also ensures that as changes occur to U.S. standards, overseas Navy installations are subject to these changes. The 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 gaps are identified. Subsequently, a revised overseas standard will be submitted to Commander, Navy Installations Command (CNIC) for formal distribution, and this manual will be updated as needed.

b. This manual establishes the Navy Overseas Drinking Water (ODW) Program, describes the responsibilities of CNIC as the Navy Executive Agent for drinking water quality matters within the program, and establishes program oversight to the WQOC. Navy Regions with installations overseas, and all Navy installations overseas will comply with this manual, related instructions and guidance. CNIC serves as the single point of contact for all matters related to drinking water systems at Navy installations. The WQOC serves as the entity responsible for managing Navy ODW Program compliance. These requirements do not supersede, replace or obviate other requirements already in place. Navy Regions with installations overseas, as well as all other overseas installations must continue to meet Department of Defense (DoD) environmental requirements including reference (b); country-specific Environmental FGS; and other applicable requirements, such as international agreements, in-theater commander directives, and DoD and Service policies as applicable.

2. Applicability

a. The Navy ODW Program and its requirements, including this manual, apply to Navy/CNIC installations and installation properties outside the continental United States and its territories. These locations and their properties are also termed "overseas installations." These include locations such as forward operating bases, Isa Air Base, and the Atlantic Undersea Test and Evaluation Center (AUTECE). Overseas installations may be located on a variety of properties, which can include ceded, leased, government and non-government properties. Overseas locations can also include non-contiguous installation properties under the control of the installation Commanding Officer (CO).

b. The Navy ODW Program and its requirements, including this manual, do not apply to overseas installations or facilities where the U.S. Navy does not control the maintenance and operation that is subject to regulation regarding drinking water. Per reference (b), contingency locations, and associated operations and deployments, such as cases of

hostilities, contingency operations in hazardous areas, peacekeeping missions or relief operations are not included in the Navy ODW Program. Associated operations and deployments also include U.S. forces operating as part of a multinational force not under full U.S. control (e.g., North Atlantic Treaty Organization (NATO) installations).

c. The Navy ODW Program treats all drinking water systems as public water systems (PWS), regardless of their population size or other system classification. The program does not recognize the “less than 15 connections” or “less than 25 persons” non-PWS exclusion in the U.S. standards

3. Organization

a. Water Quality Oversight Council

(1) The Navy WQOC is the overall governing body and reports on a regular basis to the Navy Executive Agent. The WQOC is permanently chaired by the CNIC Director, Facilities and Environmental (N4). Standing membership will include representatives from:

- (a) CNIC,
 - (b) Naval Facilities Engineering Systems Command (NAVFAC) Headquarters (HQ) Public Works and Environmental,
 - (c) Bureau of Medicine and Surgery (BUMED),
 - (d) Navy and Marine Corps Force Health Protection Command (NMCFHPC),
 - (e) NAVFAC Atlantic (LANT) and Pacific (PAC) Environmental and Public Works,
- and
- (f) Naval Sea Systems Command (NAVSEA) 04Q Laboratory Quality and Accreditation Office (LQAO)

(2) Other ad hoc members may be included as necessary. The WQOC will convene on a regular basis, determine overarching policies and make associated decisions, and implement actions. The WQOC coordinates with three established subgroups, as needed, to avoid duplicating efforts.

(a) Navy Operator Certification Authority Board. The Navy Operator Certification Authority (NOCA) Board is a subgroup advising the WQOC. The NOCA Board will provide oversight of matters relating to qualifications, experience, training, education, examination and certification of operators of drinking water treatment, and distribution systems. This oversight will ensure protection of public health and Navy ODW systems are properly operated, maintained and managed. Membership will consist of either

Public Works (PW) and/or Environmental (EV) representatives from NAVFAC LANT, NAVFAC PAC and subject matter experts (SMEs) from each ODW Region that are approved by the WQOC Chair. The NOCA Board Chair will be a NAVFAC Public Works representative, rotating every two years between NAVFAC Echelon II and NAVFAC Echelon III.

(b) Laboratory Authority. The Laboratory Authority is a subgroup advising the WQOC. The Laboratory Authority will ensure that overseas laboratory quality assurance requirements are equivalent to or exceed U.S. requirements, such that overseas installations are assured they are complying with water quality requirements. Standing membership will include representatives from CNIC and NAVSEA LQAO.

(c) Technical Advisory Board. The Technical Advisory Board (TAB) is a subgroup advising the WQOC. The TAB will serve as the technical lead for the Navy ODW Program for matters of infrastructure, planning, design, construction, operations, and related regulatory matters. Membership will consist of representatives from NAVFAC LANT Public Works or Environmental, NAVFAC PAC Public Works or Environmental, and Planning Design and Construction (PDC) Directorate that are approved by the WQOC Chair. The TAB Chair will be a NAVFAC Public Works or Environmental representative, rotating every two years between NAVFAC Echelon II and NAVFAC Echelon III. A Region Water Quality Board (RWQB) TAB Lead will also be designated to be the liaison between the region and the TAB to coordinate all TAB reviews and actions.

b. Region Water Quality Board

(1) Each Navy region with overseas installations will establish a Navy RWQB. Each Region Commander (REGCOM) will chair their respective RWQB. Standing membership will include, at a minimum:

- (a) Region Facilities and Environmental (N4),
- (b) Region Environmental (N45),
- (c) Region Facilities Engineering Command Public Works (Utilities and Facilities) and Environmental,
- (d) Region Preventive Medicine Authority (PMA),
- (e) Region Public Affairs Officer (PAO), and
- (f) Region Counsel.

(2) Other ad hoc members may be added as needed. The RWQB oversees installation programs and ensures compliance and consistency but does not have program primacy. The RWQB reports to the WQOC for all drinking water matters. The standing members will be documented and submitted to the WQOC.

c. Installation Water Quality Board

(1) Each Navy overseas installation will establish a Navy Installation Water Quality Board (IWQB). Each installation CO will chair their respective IWQB. Standing membership will include, at a minimum:

- (a) Installation Public Works Officer,
- (b) Installation Environmental Program Director,
- (c) Installation Public Works Department (PWD) Utilities and Facilities Representatives,
- (d) PMA,
- (e) Operator in Responsible Charge for Treatment and Distribution,
- (f) Installation PAO, and
- (g) Installation Drinking Water Program Manager

(2) Other ad-hoc members may be added as needed. The IWQB manages the installation drinking water program and reports to the RWQB for all drinking water matters. The standing members will be documented and submitted to the WQOC via the RWQB.

4. Responsibilities

a. CNIC will:

(1) Program and budget for implementation of this manual and all other instructions pertaining to the Navy ODW Program.

(2) Carry out the duties of the Navy Executive Agent per reference (a).

- (a) Serve as the single point of contact on all matters related to ODW systems ashore.

(b) Provide safe drinking water to personnel at Navy installations, including personnel overseas and in the U.S.

(3) Perform management and oversight duties of the Navy ODW Program, in collaboration with NAVFAC and BUMED, to enable the Navy's mission and ensure protection of public health as related to drinking water at overseas installations.

b. Region Commander will:

(1) Establish and operate RWQB under their Chairmanship as the REGCOM (non-delegable) and conduct routine business to ensure program compliance, communication to stakeholders and reporting to the WQOC.

(2) Oversee compliance with the requirements established in this manual, implementation and reporting of Navy ODW Program requirements for the region.

(3) Program and budget for requirements to comply with this manual and other applicable requirements of the Navy ODW Program.

(4) Communicate routine, as well as critical drinking water matters to the WQOC in a timely manner.

(5) Provide consultation on policy, technical, budgetary and other Navy ODW Program matters to the IWQBs.

(6) Compile installation compliance data for the WQOC to review and include in the quarterly ODW stakeholders' report and the annual Environmental Management Review (EMR) data call.

(7) Demonstrate progress towards compliance with this manual by submitting quarterly updates to the WQOC via the quarterly Requirements Plan of Action and Milestones (POA&M).

(8) Issue Certificates to Operate (CTO) for ODW systems to the IWQB, as recommended by the WQOC.

(9) Provide immediate (no later than 24 hours from discovery), effective consultation and guidance to IWQBs, and other stakeholders for matters that have the potential to threaten public health, including violations of primary drinking water requirements and Maximum Contaminant Levels (MCL) (as outlined in Chapter 2); or matters with the potential to significantly impact in a negative manner, the delivery of safe, fully compliant drinking water or to negatively impact the Navy's mission. Notify the WQOC immediately (no later than 24 hours from discovery) and provide updates on the situation.

(10) Ensure implementation and compliance with this manual via the RWQB. RWQB should use the WQOC to seek guidance for situations encountered in the implementation of this manual that appear to conflict with other Navy or DoD guidance, or that appear prohibitively costly or otherwise impractical to implement.

(11) Evaluate installation compliance with this manual through external and internal environmental management system audits, external triennial sanitary surveys, and RWQB self-assessments performed every 1.5 years after systems' last triennial sanitary survey.

(12) Meet with all RWQB members on at least a quarterly basis to discuss drinking water quality and compliance matters and document with official meeting minutes. Other ad hoc members, in addition to those detailed in subparagraph 3.b., may be included in RWQB meetings when needed.

c. Installations

(1) Commanding Officers will:

(a) Establish IWQB under their Chairmanship as the installation CO (non-delegable) and conduct routine business to ensure program compliance, communication to stakeholders and reporting to the RWQB and WQOC.

(b) Oversee compliance with the requirements established in this manual, and implementation and reporting of Navy ODW Program requirements for the installation.

(c) Program and budget for requirements to comply with this manual and other Navy ODW Program requirements. Execute and track execution of drinking water requirements to meet prescribed timelines.

(d) Complete minimum ODW training requirements, specified in Chapter 11, as directed by CNIC and the respective region. Ensure operator personnel are properly trained and certified, and IWQB staff are properly trained and qualified.

(e) Communicate and report routine drinking water issues to the RWQB, and significant drinking water issues to the WQOC via the RWQB.

(f) Determine when drinking water systems are out of compliance with fit for human consumption (FFHC) requirements and conduct public notification in consultation with the WQOC and the RWQB.

(g) Submit end of year compliance data to the RWQB for inclusion into the quarterly ODW Stakeholders' report and the annual EMR data call.

(h) Demonstrate progress towards compliance with this manual by submitting quarterly updates to the RWQB via the Requirements POA&M.

(i) Provide alternative drinking water supplies when needed.

(j) Upon discovering a violation of primary drinking water requirements/MCLs, or of a drinking water issue that has the potential to threaten public health, including violations of primary drinking water requirements and Maximum Contaminant Levels (MCL) (as outlined in Chapter 2); or matters with the potential to significantly impact in a negative manner, the delivery of safe, fully compliant drinking water or to negatively impact the Navy's mission, IWQB members will notify the installation CO immediately, and other key IWQB members and the RWQB immediately thereafter (no later than 24 hours from discovery).

(k) Convene the IWQB to determine the proper response to a violation, to include public notification and determination of FFHC.

(l) Conduct routine site walk-through of the installation drinking water infrastructure and discuss observations with the IWQB staff.

(m) Issue an Annual Consumer Confidence Report (CCR) to drinking water system customers.

(n) Document compliance with this manual in the Navy ODW Data Repository.

(o) Perform annual self-assessments for each installation ODW system and submit results of the self-assessments to the RWQB prior to the end of each fiscal year.

(p) Evaluate installation compliance with this manual through external and internal environmental management system audits, external triennial sanitary surveys, and annual self-assessments.

(q) Meet with all IWQB members on at least a quarterly basis to discuss drinking water quality and compliance matters and document with official meeting minutes. Other ad hoc members, in addition to those detailed in subparagraph 3.c., may be included in IWQB meetings when needed.

(2) Public Works Department will:

(a) Provide technical and managerial expertise to IWQB staff.

(b) Assign the Installation Environmental Program Director as the lead point of contact (POC) for the IWQB (may be delegated to the Installation Environmental Drinking Water Program Manager).

(c) Ensure coordination of drinking water program issues with local PMA, per reference (a).

d. NAVFAC will:

(1) Comply with and execute this manual and other applicable requirements of the Navy ODW Program in collaboration with CNIC, BUMED, and their subordinate commands.

(2) As the utility and facility operator and provider, support CNIC by providing safe, fully compliant drinking water.

(3) Manage operation, maintenance, repair, monitoring, reporting and related aspects of the Navy ODW Program. Facilities Engineering Commands will:

(a) Provide technical and managerial expertise to RWQB staff.

(b) Assign the Environmental Director (dual hatted as CNIC Region N45) as the lead point of contact for the RWQB. This responsibility can be delegated to the Region Environmental Drinking Water Program Manager.

(4) Ensure coordination of drinking water program issues with Region PMA, per reference (a).

(5) NAVFAC LANT and PAC Public Works will provide technical support, expertise, and execution to resolve enterprise-wide water quality issues related to utility and facility functions (e.g., legionella, waterline breaks, treatment, emergency response plans, and flushing programs). NAVFAC LANT and PAC Environmental will manage and execute the environmental programs that ensure installation compliance with all applicable laws and regulations. NAVFAC HQ Public Works and Environmental will support these functions and task out to LANT and PAC as necessary.

e. BUMED and NMCFHPC will:

(1) Serve in an advisory public health role to the IWQB and RWQB, per reference (c).

(2) Provide prompt public health assessments in the event of the exceedance of a MCL, Action Level, or Health Advisory.

(3) Designate representatives to serve as technical advisors on public health matters to the WQOC and RWQB.

(4) Designate, in writing, a local PMA to participate on the IWQB as public health advisor to the installation CO and make timely decisions on all public health issues related to drinking water.

f. NAVSEA LQAO will:

(1) Lead the WQOC Laboratory Authority and support the Navy's laboratory quality assurance program per reference (a).

(2) Adhere to the responsibilities outlined by the Memorandum of Agreement with CNIC for Overseas Drinking Water Sampling and Laboratory Support.

CHAPTER 2 DRINKING WATER QUALITY STANDARDS

1. Scope

a. This chapter sets requirements for drinking water quality standards at U.S. Navy installations overseas. In order to set the criteria for meeting U.S. drinking water quality standards, the Navy Executive Agent for Drinking Water Ashore, Commander, Navy Installations Command (CNIC), hereby references the National Primary Drinking Water Regulations (NPDWR) (reference (d)) issued under the Safe Drinking Water Act (SDWA) as described in this chapter as the standard for overseas installations to meet or exceed.

b. This chapter references U.S. primary drinking water regulations pursuant to section 1412 of reference (e), as amended by reference (f), and related regulations as the U.S. standards applicable to all U.S. Navy installations overseas.

2. Requirements

a. The U.S. standards listed in this chapter do not replace requirements already in place. Overseas installations must continue to meet environmental final governing standards (FGS) and other applicable requirements, such as reference (b), international agreements, in-theater commander and Department of Defense (DoD) Directives, and service policies as applicable. If an FGS or other requirement is the same as a U.S. standard, only one test or specified action is required to comply with the requirement; for example, one test can report the contaminant level for one or more of the same sampling requirements. However, the testing must comply with both standards' testing methodology requirements.

b. This chapter references several subparts of reference (d), as outlined in reference (f), as the U.S. drinking water standards applicable to U.S. Navy installations overseas and all Overseas Drinking Water (ODW) systems on overseas Navy installations. The Region Water Quality Board (RWQB) will coordinate and seek input and approval from the Water Quality Oversight Council (WQOC) for all risk-based decisions resulting from implementing this chapter.

c. Purchased water will be subject to the same monitoring requirements as DoD-produced water and should comply with the monitoring requirements as stated in this chapter. Compliance dates cited in these subparts are not applicable, and the WQOC should be consulted for relevant compliance dates. Paragraph 3 outlines specific subparts of reference (d), per reference (f), that are referenced in this chapter; the direction provided therein should be referenced except where further direction is provided.

d. The following U.S. regulations under Title 40 of the Code of Federal Regulation (CFR) is incorporated by reference and approved by the Navy Executive Agent for Drinking Water Ashore per reference (a).

§ 141.2 Definitions

§ 141.11 MCLs for inorganic chemicals

§ 141.13 MCLs for turbidity

§ 141.21 Coliform sampling

§ 141.22 Turbidity sampling and analytical requirements

§ 141.23 Inorganic chemical sampling and analytical requirements

§ 141.24 Organic chemicals, sampling and analytical requirements

§ 141.25 Analytical methods for radioactivity

§ 141.26 Monitoring frequency and compliance requirements for radionuclides in community water systems

§ 141.27 Alternate analytical techniques

Appendix A to Subpart C of Part 141 Alternative Testing Methods Approved for Analyses under the Safe Drinking Water Act

§ 141.33 Record Maintenance

§ 141.41 Special monitoring for sodium

§ 141.42 Special monitoring for corrosivity characteristics

§ 141.43 Prohibition on use of lead pipes, solder, and flux

§ 141.61 MCLs for organic contaminants

§ 141.62 MCLs for inorganic contaminants

§ 141.63 MCLs for microbiological contaminants

§ 141.64 MCLs for disinfection byproducts

- § 141.65 Maximum residual disinfectant levels
- § 141.66 MCLs for radionuclides
- § 141.70 General requirements
- § 141.71 Criteria for avoiding filtration
- § 141.72 Disinfection
- § 141.73 Filtration
- § 141.74 Analytical and monitoring requirements
- § 141.75 Reporting and recordkeeping requirements
- § 141.76 Recycle provisions
- § 141.80 General requirements
- § 141.81 Applicability of corrosion control treatment steps to small, medium-size and large water systems
- § 141.82 Description of corrosion control treatment requirements
- § 141.83 Source water treatment requirements
- § 141.84 Lead service line replacement requirements
- § 141.85 Public education and supplemental monitoring requirements and mitigation requirements
- § 141.86 Monitoring requirements for lead and copper in tap water
- § 141.87 Monitoring requirements for water quality parameters
- § 141.88 Monitoring requirements for lead and copper in source water
- § 141.89 Analytical methods
- § 141.90 Reporting requirements
- § 141.91 Recordkeeping requirements

- § 141.100 Criteria and procedures for public water systems using point-of-entry devices
- § 141.101 Use of bottled water
- § 141.110 General requirements
- § 141.111 Treatment techniques for acrylamide and epichlorohydrin
- § 141.130 General requirements
- § 141.131 Analytical requirements
- § 141.132 Monitoring requirements
- § 141.133 Compliance requirements
- § 141.134 Reporting and recordkeeping requirements
- § 141.135 Treatment technique for control of disinfection byproduct (DBP) precursors
- § 141.170 General requirements
- § 141.171 Criteria for avoiding filtration
- § 141.172 Disinfection profiling and benchmarking
- § 141.173 Filtration
- § 141.174 Filtration sampling requirements
- § 141.175 Reporting and recordkeeping requirements
- § 141.201 General Public Notification Requirements
- § 141.202 Tier 1 Public Notice—Form, manner, and frequency of notice
- § 141.203 Tier 2 Public Notice—Form, manner, and frequency of notice
- § 141.204 Tier 3 Public Notice—Form, manner, and frequency of notice
- § 141.205 Content of the public notice
- § 141.400 General requirements and applicability

§ 141.401 Sanitary surveys for ground water systems

§ 141.402 Ground water source microbial monitoring and analytical methods

§ 141.403 Treatment technique requirements for ground water systems

§ 141.404 Treatment technique violations for ground water systems

§ 141.405 Reporting and recordkeeping for ground water systems

§ 141.500 General requirements

§ 141.501 Who is subject to the requirements of subpart T?

§ 141.502 When must my system comply with these requirements?

§ 141.503 What does subpart T require?

§ 141.510 Is my system subject to the new finished water reservoir requirements?

§ 141.511 What is required of new finished water reservoirs?

§ 141.520 Is my system subject to the updated watershed control requirements?

§ 141.521 What updated watershed control requirements must my unfiltered system implement to continue to avoid filtration?

§ 141.522 How does the State determine whether my system's watershed control requirements are adequate?

(a) The Installation Water Quality Board (IWQB) will make this determination if applicable with assistance from the RWQB who reports the decision to the WQOC.

(b) Upon request, the WQOC will provide guidance to the RWQBs.

§ 141.530 What is a disinfection profile and who must develop one?

§ 141.531 What criteria must a State use to determine that a profile is unnecessary?

(a) The IWQB will make this determination if applicable, with assistance from the RWQB which reports the decision to the WQOC.

(b) Upon request, the WQOC will provide guidance to the RWQB.

§ 141.532 How does my system develop a disinfection profile and when must it begin?

§ 141.533 What data must my system collect to calculate a disinfection profile?

§ 141.534 How does my system use this data to calculate an inactivation ratio?

§ 141.535 What if my system uses chloramines, ozone, or chlorine dioxide for primary disinfection?

§ 141.536 My system has developed an inactivation ratio; what must we do now?

§ 141.540 Who has to develop a disinfection benchmark?

§ 141.541 What are significant changes to disinfection practice?

§ 141.542 What must my system do if we are considering a significant change to disinfection practices?

§ 141.543 How is the disinfection benchmark calculated?

§ 141.544 What if my system uses chloramines, ozone, or chlorine dioxide for primary disinfections?

§ 141.550 Is my system required to meet subpart T combined filter effluent turbidity limits?

§ 141.551 What strengthened combined filter effluent turbidity limits must my system meet?

§ 141.552 My system consists of “alternative filtration” and is required to conduct a demonstration—what is required of my system and how does the State establish my turbidity limits?

(a) The IWQB will make this determination if applicable with assistance from the RWQB which reports the decision to the WQOC.

(b) Upon request, the WQOC will provide guidance to the RWQB.

§ 141.553 My system practices lime softening—is there any special provision regarding my combined filter effluent?

§ 141.560 Is my system subject to individual filter turbidity requirements?

§ 141.561 What happens if my system's turbidity monitoring equipment fails?

§ 141.562 My system only has two or fewer filters—is there any special provision regarding individual filter turbidity monitoring?

§ 141.563 What follow-up action is my system required to take based on continuous turbidity monitoring?

§ 141.564 My system practices lime softening--is there any special provision regarding my individual filter turbidity monitoring?

§ 141.570 What does subpart T require that my system report to the State?

(a) For Navy overseas installations, this information will be recorded and maintained by the installation.

(b) For Navy overseas installations, this information will be reported to the RWQB and WQOC as required.

§ 141.571 What records does subpart T require my system to keep?

(a) The IWQB will input all compliance data, reports, and operational records into the Navy ODW Data Repository.

(b) The IWQB will retain all compliance data, reports, and operational records for a period of time specified in this section.

§ 141.600 General requirements

§ 141.601 Standard monitoring (link to form in Appendix C)

§ 141.602 System specific studies

§ 141.603 40/30 certification (link to form in Appendix C)

§ 141.604 Very small system waivers (link to form in Appendix C)

§ 141.605 Subpart V compliance monitoring location recommendations

§ 141.620 General requirements

§ 141.621 Routine monitoring

§ 141.622 Subpart V monitoring plan

§ 141.623 Reduced monitoring

(a) RWQBs are responsible for reviewing and approving installation sampling plans and installation requests to transition to reduced monitoring of specific drinking water parameters. RWQBs must consult with and receive concurrence from installation and Region Preventive Medicine Authority (PMA) prior to approving reduced monitoring.

(b) RWQBs must formally document their review and approval decisions in the ODW Data Repository per record keeping requirements.

§ 141.624 Additional requirements for consecutive systems

§ 141.625 Conditions requiring increased monitoring

§ 141.626 Operational evaluation levels

§ 141.627 Requirements for remaining on reduced total trihalomethanes (TTHM) and haloacetic acids (HAA5) monitoring based on subpart L results

§ 141.628 Requirements for remaining on increased TTHM and HAA5 monitoring based on subpart L results

§ 141.629 Reporting and recordkeeping requirements

§ 141.700 General requirements

§ 141.701 Source water monitoring

§ 141.703 Sampling locations

§ 141.704 Analytical methods

(a) The WQOC authorized a variance to extend the 96-hour *Cryptosporidium* and *Giardia lamblia* sample holding time to not longer than seven days – based on available scientific data on the effects of time and temperature on *Cryptosporidium* and *Giardia lamblia* in water.

(b) In conjunction with the variance in holding time, all *Cryptosporidium* and *Giardia lamblia* samples will be shipped with a calibrated continuous temperature tracker logger to monitor temperature changes and ensure sample viability.

(c) Installations will coordinate the management of field filtering and shipping *Cryptosporidium* and *Giardia lamblia* samples with the laboratory contracted to perform testing.

§ 141.706 Reporting source water monitoring results

§ 141.707 Grandfathering previously collected data

§ 141.708 Requirements when making a significant change in disinfection practice

§ 141.709 Developing the disinfection profile and benchmark

§ 141.710 Bin classification for filtered systems

§ 141.711 Filtered system additional *Cryptosporidium* treatment requirements

§ 141.712 Unfiltered system *Cryptosporidium* treatment requirements

§ 141.714 Requirements for uncovered finished water storage facilities

§ 141.715 Microbial toolbox options for meeting *Cryptosporidium* treatment requirements

§ 141.716 Source toolbox components

§ 141.717 Pre-filtration treatment toolbox components

§ 141.718 Treatment performance toolbox components

§ 141.719 Additional filtration toolbox components

§ 141.720 Inactivation toolbox components

§ 141.721 Reporting requirements

§ 141.722 Recordkeeping requirements

§ 141.852 Analytical methods and laboratory certification

(a) 40 CFR 141.852(5)(b), Laboratory Certification, does not apply to the Navy ODW Program.

(b) Chapter 4 of this manual details requirements for Navy ODW laboratory usage and approval.

§ 141.853 General monitoring requirements for all public water systems

§ 141.854 Routine monitoring requirements for non-community water systems serving 1,000 or fewer people using only ground water

§ 141.855 Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water

§ 141.856 Routine monitoring requirements for subpart H public water systems serving 1,000 or fewer people

§ 141.857 Routine monitoring requirements for public water systems serving more than 1,000 people

§ 141.858 Repeat monitoring and *E. coli* requirements

§ 141.859 Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination

(a) IWQBs are responsible for conducting Level 1 Assessments as required.

(b) RWQBs, or an RWQB-designated entity, are responsible for conducting Level 2 Assessments as required.

(c) Level 1 and Level 2 Assessments Forms are provided in Appendix C.

§ 141.860 Violations

§ 141.861 Reporting and recordkeeping

e. Compliance with Surface Water Treatment Requirements

(1) Overseas DoD public water systems (PWS) that use surface water sources (or ground water under direct influence of surface water (GWUDI) or seawater) will comply with surface water treatment (SWT) requirements listed under subparagraph 2.d. The Overseas Environmental Baseline Guidance Document (OEBGD) updated on June 29, 2020 (reference (b)) requires that DoD PWSs that use surface water sources or GWUDI and are in the control of the watershed (including on-site water source) and on-site treatment plant, must meet the full suite of SWT requirements. However, watershed management and treatment of drinking water derived from a surface water (or GWUDI or seawater) source are frequently outside the jurisdiction and control of the U.S. Navy. Full compliance with U.S.-based surface water treatment requirements can be challenging due to the cost; lack of space; unknown variability; or lack of control in the watershed, international relations concerns and other reasons. These

situations typically occur at Navy ODW systems that purchase or otherwise use drinking water provided by a host nation PWS that treats a surface water source (or GWUDI). Based on these variable conditions, Navy ODW systems must select one of the compliance options described in subparagraphs 2.e.(1)(a) through 2.e.(1)(d) and outlined in Appendix E, Figure E-1. All options require WQOC concurrence via approval of a site-specific compliance plan. The WQOC reserves the right to direct installations to the Path 4 compliance option in Appendix E, Figure E-1 on a case-by-case basis.

(a) Path 1 of Appendix E, Figure E-1 is only applicable to Navy ODW systems currently in full compliance or approaching full compliance with SWT requirements. These systems must have available information that demonstrates all applicable requirements for surface water treatment are met including current monitoring and treatment practices and maintenance of a distribution system chlorine residual. Information includes source water monitoring data, on-site treatment processes, and/or host nation treatment processes (as applicable).

(b) As indicated in Path 2 of Appendix E, Figure E-1, IWQBs, in coordination with the RWQB and WQOC, may conduct an on-site technical assessment of the drinking water purveyor treatment plant(s) that documents full conformance with requirements or any compliance gaps, and makes a site-specific case for compliance. These assessments require WQOC concurrence and must be re-validated at each triennial sanitary survey.

(c) Path 3 of Appendix E, Figure E-1 presents the requirements for achieving compliance as an unfiltered system only for those Navy ODW systems that have full control of the watershed, source water, and on-site treatment plant and can comply with all filtration avoidance criteria as defined in reference (d). Source water sampling for filtration avoidance at the entry point to the system is not allowable because the water at that location is generally considered treated water rather than actual raw water. Therefore, Path 3 is not an option for systems that do not have full control of the source water.

(d) Navy ODW systems that cannot follow Path 2 or Path 3 of Appendix E, Figure E-1 either due to inability to assess host nation treatment plants, lack of control of the watershed and source water or inability to meet all filtration avoidance defined in 40 CFR 141.71 (reference (d)) must proceed to Path 4 of Appendix E, Figure E-1. Under this compliance option, unless ODW systems can confirm a bin classification lower than Bin 4, the systems must implement a 5.5-log treatment for *Cryptosporidium* or higher (under Long-Term 2 (LT2) Enhanced Surface Water Treatment Rule (SWTR), 40 CFR 141.711 subparagraph 2.d, including at least 2.0-log removal of *Cryptosporidium* under Interim Enhanced SWTR and LT1 Enhanced SWTR (40 CFR 141.173 and 552, respectively, subparagraph 2.d)). The WQOC reserves the right to direct any installation to Path 4 on a case-by-case basis.

1. If the IWQB does not want to implement any of the compliance methodologies found in Appendix E, Figure E-1, the IWQB and RWQB will consult with the

WQOC on a case-by-case basis to determine the course of action. To demonstrate compliance, the IWQB and RWQB will present to the WQOC evidence that the overseas installation is achieving the required removal and/or inactivation of regulated pathogens by using conventional treatment and/or using technologies in the Microbial Toolbox (reference (d)).

2. If using alternative filtration such as membrane filtration to demonstrate compliance, the IWQB and RWQB must present evidence of membrane challenge testing, on-site direct integrity testing, and on-site indirect integrity monitoring. If bag or cartridge filters are used, evidence of challenge testing and filter monitoring must be presented to the WQOC.

3. If using ultraviolet (UV) disinfection as a treatment technique to demonstrate compliance, the IWQB and RWQB must present evidence of UV reactor validation testing and monitoring.

4. The IWQB and RWQB must provide evidence demonstrating effective treatment for *Cryptosporidium*, *Giardia lamblia*, and viruses. If the overseas installation is further treating water provided by a host nation treatment plant, the IWQB and RWQB can present evidence demonstrating treatment levels achieved by the host nation plant in removal/disinfection of *Cryptosporidium*, *Giardia lamblia*, and viruses.

(2) ODW systems that are not in compliance with SWT requirements must develop a site-specific compliance plan with a defined implementation timeline for WQOC approval before implementing the alternative compliance options described in subparagraph 2.e.(1). SWT compliance plans must be approved by the WQOC before the Technical Advisory Board (TAB) is approached to consult on implementation. ODW systems with an approved compliance plan that has not been fully implemented will publish a public notification via their required annual Consumer Confidence Report (CCR).

(a) The notice in the CCR will describe the purpose of the compliance plan and the schedule to implement the plan and comply with the SWT requirements. ODW systems without an approved compliance plan must also publish an annual public notification via their CCR which must describe the purpose and status of developing a SWT compliance plan.

(b) ODW systems must continue to publish these public notices in the annual CCRs until their SWT compliance plan is fully implemented.

(3) If the implementation timeline established in an approved compliance plan is not met, either due to funding constraints or other extenuating circumstances, the plan must be updated with a revised implementation timeline and associated strategy and re-submitted for WQOC approval. These compliance plans and annual public notices will allow water systems additional time to build capacity to achieve and maintain regulatory compliance while continuing to provide acceptable levels of public health protection.

(4) The WQOC will evaluate compliance plan implementation progress during triennial sanitary surveys. If an ODW system fully implements its approved compliance plan in between triennial sanitary surveys, the IWQB, via the RWQB, can submit supporting documentation to the WQOC for concurrence that the system is now in compliance with SWT requirements per the compliance plan.

(5) In addition to the public notice required in the annual CCR, installations are required to provide a Tier 2 public notification when there are violations of SWTR Treatment Techniques (TT) and Tier 1 notifications for exceedances of applicable turbidity standards. Note that the turbidity standards included in the SWTR are intended to be measured immediately after treatment (i.e., individual filter effluent and/or combined filter effluent, depending on the type of filter, filter arrangement, and applicable standards) and not at the entry to the distribution system or at the interconnection to the host nation system. SWTR Treatment Technique violations are described in reference (d), Subpart H, P, T and W. The RWQB and WQOC will require a public notification issuance within a shorter timeframe (e.g., 24 hours) and/or issuance of a drinking water advisory (i.e., Boil Water, Do Not Drink, Do Not Use Notice) if there is an imminent threat to public health. Per reference (a), these public notices must be reviewed by the Navy Bureau of Medicine and Surgery (BUMED) and in consultation to the installation Commanding Officer (CO) and IWQB. Fit for Human Consumption (FFHC) determinations will remain for ODW systems that are in compliance with the FFHC requirements outlined in Chapter 7.

f. Use of National Sanitation Foundation/American National Standards Institute (NSF/ANSI) Standard 60 Chemicals

(1) References (c) and (g) require that chemicals used in Navy water treatment systems meet the standard in reference (h). The requirement applies to any chemical that may come in contact with drinking water, including chemicals used for cleaning and flushing. If National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) Standard 60-certified chemicals are not available to an installation via market or traditional Navy supply chains (e.g., Naval Supply Systems Command and Defense Logistics Agency), the installation will send selected chemicals to NSF for evaluation. The installation and region will bear the cost required by NSF for the evaluation process. The evaluation will not certify the specific chemical as NSF/ANSI Standard 60-certified but will provide a technical report indicating if the material is comparable or equivalent to NSF/ANSI Standard 60. Chemicals will be reevaluated for NSF-60 equivalency on a triennial basis, or earlier when there is a change in supplier or manufacturer. The procedure described in subparagraph 2.f.(4) must be followed in obtaining chemical-specific NSF/ANSI Standard 60 equivalency evaluation of a chemical and RWQB and WQOC approvals of such a chemical.

(2) Overseas Navy installations will determine the need for specific water treatment chemicals to meet applicable water quality standards. IWQBs will validate the requirement for use (e.g., disinfection, corrosion control) for each chemical in use or proposed for use and document the validation in the Navy ODW Data Repository. The IWQB must also determine

and document dose and feed rate limitation, as applicable, of each chemical at each chemical feed location as well as document any chemical safety procedures related to use and storage of each chemical. A list of certified chemicals must be maintained on the Navy ODW Data Repository.

(3) Overseas Navy installations will procure and use water treatment chemicals that are NSF/ANSI Standard 60 certified. NSF/ANSI Standard 60-certified chemicals may be purchased and obtained from either U.S. manufacturers, or overseas manufacturers, since many overseas manufacturers maintain NSF/ANSI Standard 60 certification. The IWQB will determine the most prudent course for obtaining the certified chemicals, taking into account quality assurance, availability of supply, delivery time, cost, shelf life, procurement considerations, and other related factors. Refer to Appendix F for the procedure for selecting water treatment chemicals. The purchase and delivery of chemicals must be accompanied by certification documentation from the manufacturer or the certifying entity. Certification documentation must be kept on record by the installation in the Navy ODW Data Repository.

(4) In situations where an installation is unable to obtain NSF/ANSI Standard 60-certified chemicals, the following alternatives will be used.

(a) Installations may purchase and use Underwriter's Laboratory (UL)-certified chemicals as UL certification testing methods are consistent with those performed by NSF and chemicals that are UL-certified meet NSF/ANSI 60 standards. Navy ODW systems are permitted to use UL-certified drinking water chemicals without the need for additional evaluation.

(b) If the installation identifies water treatment chemicals that are certified per references (i) and (j), or certified per host nation legislation as being equivalent to chemicals certified to comply with the standards established in references (i) and (j), such chemicals must be sent to NSF for NSF/ANSI Standard 60 equivalency evaluation. Prior to purchase and use of the chemical, the IWQB must obtain the NSF equivalency evaluation results and approval for use by the RWQB and WQOC. The IWQB must also provide the list of approved chemicals obtained via this alternative to the WQOC. In situations where an installation uses chemicals that are approved by the host nation for booster chlorination and used only to maintain chlorine residuals, the ODW system will be allowed to use these chemicals once the IWQB has submitted the chemical name and appropriate documentation to the WQOC.

(c) Installations may purchase water treatment chemicals that are used locally or are otherwise available for purchase in compliance with Navy procurement guidelines to the advantage of the government, and subject to an NSF assessment for equivalency with NSF/ANSI Standard 60. If considered equivalent, the chemicals may be used until NSF/ANSI Standard 60-certified chemicals become available. The assessment methodology, including any testing, must be approved in advance by the RWQB and WQOC, and results of the assessment must be reviewed and deemed acceptable by the RWQB and WQOC prior to approval for use.

(5) Installations must send non-NSF/ANSI Standard 60 chemicals that were previously assessed as NSF/ANSI Standard 60 equivalent to NSF for reevaluation triennially to ensure equivalency is maintained.

(a) If the installation moves to a new supplier, or the supplier moves to a new source of treatment chemicals (manufacturer), these new chemicals must be fully evaluated to ensure they meet NSF/ANSI Standard 60 or NSF/ANSI Standard 60 equivalence requirements prior to use.

(b) Installations will consult with appropriate Navy procurement officials for assistance in obtaining NSF/ANSI Standard 60-certified chemicals or approved chemical alternatives allowed for use by this manual.

(c) Installations will ensure chemicals are properly transported, delivered, handled, stored, and used at all times; to include, when specifying purchasing requirements, when taking delivery of chemicals, and over the life of storage and use on the installation.

(d) The WQOC will be responsible for monitoring changes to NSF/ANSI Standard 60 for water treatment chemicals, and for identifying other treatment chemical standards that may impact the use of water quality. Any developments will be reported immediately to the WQOC Chair. The WQOC will keep overseas installations informed of such changes.

(e) RWQBs are responsible for monitoring changes to host nation standards for drinking water chemical additives if such products are used by installations within the region and communicating those changes to the WQOC.

(6) All installations must provide a triennial validation memorandum to file for all drinking water chemicals being used for ODW systems to ensure chemicals continue to meet NSF/ANSI Standard 60 or equivalent standards.

g. Use of Lead-Free Pipes, Fittings, Fixtures, Solder and Flux

(1) Reference (c) requires that all components (piping, valves, fittings, meters, hydrants, pumps and other appurtenances and their design, installation, operation and maintenance) used in Navy water distribution systems meet the standard in reference (k). In addition to the requirements established by reference (d), the use of any non-lead-free pipe, plumbing fitting or fixture, solder or flux for the installation or repair of any Navy ODW system is prohibited. Prohibiting the use of these products reduces the risk of lead contamination in drinking water resulting from the corrosion of lead pipes and fixtures. The requirement does not apply to leaded joints necessary for the repair of cast iron pipes.

(2) "Lead-free," for the purposes of this requirement and as established in reference (1), is defined as:

(a) Not containing more than 0.2 percent lead when used with respect to solder and flux.

(b) Not more than a 0.25 percent weighted average of lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.

(c) The weighted average lead content, described in subparagraph 2.g.(2)(b), of a pipe, pipe fitting, plumbing fitting or fixture must be calculated using the following methods.

1. Add the weighted percentage of lead for each wetted component together; the sum of these weighted percentages equals the weighted average lead content of the product. The lead content of the material used to produce wetted components is used to determine compliance with subparagraph 2.g.(2). For lead content of materials that are provided as a range, the maximum content of the range must be used.

2. For each wetted component, multiply the percentage of lead in the component by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product, to arrive at the weighted percentage of lead of the component

3. If a coating is applied to the internal surfaces of a pipe, fitting or fixture component, the maximum lead content of both the coating and the alloy must be used to calculate the lead content of the component.

4. If a liner is manufactured into a pipe, fitting or fixture, the maximum lead content of the liner must be used to calculate the lead content of the component.

(3) NSF/ANSI Standard 61-certified materials meet the definition of “lead-free” for the purpose of Navy ODW Program compliance. All pipes, plumbing fitting or fixture, solder or flux used for the installation or repair of an ODW system will be certified to NSF/ANSI Standard 61. In situations where NSF/ANSI Standard 61-certified materials cannot be procured locally or are otherwise unavailable for purchase, IWQBs, in coordination with the RWQB, will submit any proposed alternative lead-free materials to the Technical Advisory Board (TAB) to conduct an equivalency evaluation. Alternative lead-free materials must still comply with any host nation standards. IWQBs and RWQBs are responsible for ensuring alternative lead-free material documentation is fully translated prior to submission to the TAB for evaluation.

CHAPTER 3 HAULED DRINKING WATER

1. General

a. This chapter establishes procedures for providing Fit for Human Consumption (FFHC) hauled drinking water delivery and dispenser servicing formerly established in the Containerized Water Policy. It covers supply, filling, transport, delivery, maintenance and re-use of portable drinking water containers from the drinking water plant or other official drinking water source to end-point distribution. This chapter is limited to hauled water transferred by or under the direction of Navy Overseas Drinking Water (ODW) system water treatment and distribution operators. This chapter is not applicable when hauled water is used during tactical operations such as range training, nor does it apply to bottled water sold to the Navy or individuals. It is not applicable to point-of-use container filling stations available to general installation personnel. Unless otherwise specified, all other ODW policies apply to hauled water.

b. Drinking water is typically provided via approved distribution water systems that include direct connections from the water sources through any treatment plants, tanks, pump stations, or to the distribution mains that deliver drinking water to each service connection or facility. However, when a direct conveyance from a drinking water system is either temporarily interrupted to customers in an area or not available to customers (including those in remote areas), drinking water may be transferred to that area in containers and provided to customers as directed by the installation Commanding Officer (CO). This is termed “hauled water.”

c. Hauling of drinking water is acceptable as a temporary solution for water distribution. However, it is not generally an acceptable long-term (greater than six months) solution for water distribution due to system infrastructure deficiencies such as inadequate sources of supply. Installations that desire to use hauled water as a permanent, alternative distribution method must provide justification to and receive approval from the Region Water Quality Board (RWQB) and the Water Quality Oversight Council (WQOC).

d. This chapter addresses those occurrences where drinking water is containerized, transported and delivered to a separate and sometimes remote area in a manner that maintains the water quality, so the delivered water continues to be FFHC.

e. All such systems include the following primary elements:

- (1) A direct source of drinking water that is FFHC,
- (2) An indirect (non-piped) means of transporting the water to another area, and
- (3) A means of delivering or providing water to a customer or a customer’s water system.

2. Responsibilities

a. The Operator in Responsible Charge (ORC) and the Assistant Operator in Responsible Charge (AORC) for the distribution system are directly responsible for the hauled water program. ORCs and AORCs will:

(1) Ensure the quality of the water transported still meets and maintains the FFHC water quality standards when being delivered to the facility storage. This includes the monitoring requirements described in paragraph 5.

(2) Follow health and safety requirements described in Appendix G.

(3) Ensure the equipment, supplies, materials and tools used follow the requirements described in Appendix H.

(4) Follow the cleaning, disinfection, filling, handling and issuing, transportation and delivery, and storage procedures described in Appendix I.

b. The RWQB is responsible for overseeing ODW compliance, implementation and reporting, and will:

(1) Review submissions for justification for long-term use of hauled water prior to submission to the WQOC.

(2) Ensure that contracts and leases support compliance with this policy.

c. The WQOC will provide hauled water policy and guidance. These responsibilities include reviewing, and approving or denying requests for long-term use of hauled water on a case-by-case basis.

3. Source. The source providing hauled water must be an approved drinking water source from an approved ODW system (or temporary source approved by the RWQB and WQOC). The ODW system must comply with this manual and be declared FFHC by the installation CO. Additionally, the source supplier must have sufficient supply capacity to provide hauled water.

4. Notification and Approval

a. ODW systems that need to temporarily haul water during an emergency must notify the RWQB and WQOC, and receive approval from the installation CO, prior to the start of water hauling. ODW systems that seek to haul water as a long-term distribution method are required to submit justification and a request for approval to the WQOC, via the RWQB, prior to the start of water hauling.

b. Notification to the RWQB and WQOC for long-term distribution should address, at a minimum, the following information:

- (1) Source
- (2) Cost
- (3) Risk to Public Health
- (4) Management and Oversight
- (5) Monitoring
- (6) Whether the scenario will be considered one or multiple ODW systems

c. After receiving approval from the Installation Water Quality Board (IWQB) for temporary distribution, and approval from the WQOC for long-term distribution, the installation may begin hauling drinking water. The water may be stored and distributed locally, or it may be transported, stored and distributed nearer to operational forces.

5. Monitoring Requirements

a. Bacteriological Monitoring

(1) Each bulk water storage container transporting or receiving hauled drinking water must be tested for total coliform bacteria monthly during the period of water hauling. Non-bulk water dispensers do not need to be tested.

(a) If coliform bacteria are absent, the water may be delivered and regular water hauling may proceed.

(b) If coliform bacteria are detected, the water must be discarded and the water hauling equipment and bulk container must be disinfected according to the procedure in Appendix I before water hauling may resume. If multiple positive coliform samples continue after repeated disinfection of the bulk container, the bulk container must be taken out of service until the issue is resolved.

(2) All coliform testing results must be recorded in a copy of the Hauled Drinking Water Log (Appendix C).

b. Free Chlorine Residual Monitoring. The free chlorine residual will be measured for every container of hauled water as defined in Appendix G, Appendix H, Appendix I, and Appendix J. The free chlorine residual in the tank will be measured when the same batch of

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water is loaded and unloaded. The measured free chlorine residual will be recorded in the Hauled Drinking Water Log (Appendix (C)). If a free chlorine residual of at least 0.2 milligrams per liter (mg/L) is not detected at the time of delivery, the water will be discarded.

(1) Non-bulk container filling. Check chlorine level at Fill Station for non-bulk containers and ensure that it is at least 0.2 mg/L and no more than 4.0 mg/L free available chlorine.

(2) Bulk Water Fill Station Sanitation and Backflow Prevention. Check chlorine level at Fill Station into bulk containers to ensure that it is at least 0.2 mg/L, and no more than 4.0 mg/L. Check for proper operation of backflow devices at the fill station.

(3) Bulk Water. Field test the chlorine residual in the tanker truck and receiving bulk tank prior to filling the receiving bulk tank. Check the chlorine level at point of delivery to receiving bulk storage containers to ensure that it is at least 0.2 mg/L and no more than 4.0 mg/L.

c. Installations will consider all bulk storage containers for inclusion in the installation drinking water sampling plan to ensure water quality is monitored and maintained.

d. Additionally, the WQOC will evaluate potential requirements for additional testing in requests for approval for long-term water hauling.

6. Recordkeeping

a. Each ORC/AORC supervising an ODW system hauling water must keep a detailed log per Appendix C, which includes the following information:

(1) The approved source of water and the amount of water hauled.

(2) Total coliform bacteria sampling results and free chlorine residual readings.

(3) Description and date of maintenance activities, such as cleaning and disinfection of the trucks and containers, including non-bulk containers.

(4) Description and date of chlorination activities (e.g., lots, amounts, and products used for re-chlorination).

b. The IWQB is responsible for uploading the Hauled Drinking Water Log (Appendix C) quarterly to the Navy ODW Data Repository.

CHAPTER 4 LABORATORIES

1. Applicability. This chapter applies to all laboratories analyzing drinking water compliance samples for the Navy's Overseas Drinking Water (ODW) systems, regardless of the size or complexity of the laboratory. The requirements in this document do not obviate compliance with existing laboratory quality assurance/quality control (QA/QC) requirements as defined in host-nation final governing standards (FGS), references (a) and (b), as applicable, or more stringent contract specifications.

2. Laboratory Accreditation and Selection. All laboratories analyzing drinking water samples must either be accredited Defense Centers for Public Health (DCPH)-Aberdeen laboratories (subparagraph 4.c), third-party accredited (subparagraphs 4.d and 4.e), or approved on-site installation compliance laboratories. The Water Quality Oversight Council (WQOC) Laboratory Authority will verify, or recommend for approval to the WQOC Chair, all laboratories used for conducting analysis of drinking water compliance samples. Overseas installations may elect to use the following laboratories:

a. DCPH-Aberdeen accredited laboratories.

b. Third-party accredited laboratories in one of the following categories:

(1) Laboratories accredited to International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 by International Laboratory Accreditation Cooperation (ILAC) Signatories utilizing U.S. Environmental Protection Agency (EPA)-approved methodology or WQOC-approved equivalent methodology, or

(2) Laboratories in the United States accredited by state Safe Drinking Water Act (SDWA) laboratory certification programs for EPA-approved methodology.

(3) Laboratories accredited to the Department of Defense (DoD)/Department of Energy (DOE) Quality System Manual.

c. When DCPH-Aberdeen laboratories or third-party accredited laboratories cannot be used, or are not available, installations will have their on-site compliance laboratories assessed and recommended for approval by the WQOC Laboratory Authority and formally approved by the WQOC Chair. All on-site compliance laboratories will have an initial on-site assessment by the WQOC Laboratory Authority. See Appendix K for assistance with choosing an appropriate ODW laboratory. All laboratories that choose to go through the ODW Laboratory Approval Process (Appendix L) instead of pursuing WQOC Laboratory Authority-verified, third-party accredited laboratories will adhere to the following requirements:

- (1) Use EPA- or WQOC-approved methods deemed to be equivalent to EPA methods or more stringent,
- (2) Maintain staff with qualified personnel,
- (3) Maintain a quality management system,
- (4) Satisfactorily analyze proficiency testing (PT) samples (at least annually) for all parameters within the scope of their testing,
- (5) Undergo an initial on-site assessment by the WQOC Laboratory Authority and follow-up site assessments at a minimum of once every two years. The WQOC Laboratory Authority reserves the right to conduct on-site assessments on a more frequent basis and request data packages to review, if the defensibility of the data generated by the laboratory is called into question due to lack of resources, failed proficiency testing samples or systemic quality issues.
- (6) Participate in data calls for laboratory quality and management data as requested.

3. Enforcement Structure and Responsibilities

a. WQOC Laboratory Authority. The WQOC Laboratory Authority is responsible for developing and implementing the approval program for laboratories that analyze ODW compliance samples. These responsibilities include:

- (1) Verifying that overseas laboratory QA/QC requirements are equivalent to, or more stringent than, U.S. requirements and comply with the drinking water quality testing requirements of reference (a).
- (2) Ensuring, at a minimum, monthly reporting and communications to the WQOC Chair regarding overseas laboratory implementation.
- (3) Defining criteria for overseas laboratories to meet and establish laboratory QA/QC policies and guidance.
- (4) Evaluating and reviewing laboratory reports prepared at installations, PT results and any associated corrective actions submitted by approved laboratories.
- (5) Providing technical support to the WQOC on drinking water quality sampling and testing issues.
- (6) Serving as technical expert to the WQOC on drinking water laboratory QA/QC process matters.

(7) Managing the ODW Laboratory Approval Process.

(8) Maintaining a current inventory of all verified laboratories (i.e., DCPH-Aberdeen, third-party accredited laboratories and WQOC-approved laboratories), as well as their capabilities for sample analysis.

(9) Proposing and issuing laboratory-related updates to Commander, Navy Installations Command (CNIC) instructions.

(10) Responding to questions and comments on overseas laboratory QA/QC policy and developing written guidance as needed.

(11) Conducting initial and, at a minimum, follow-up biennial on-site assessment of overseas laboratories approved through the WQOC Laboratory Authority Approval Process (see Appendix L) for chemistry, microbiology and parasitology. This requirement does not apply to the DCPH-Aberdeen or verified third-party accredited laboratories.

(12) Reviewing international testing procedures to ensure they are equivalent to, or more stringent than, EPA-approved methods.

(13) Encouraging regions and installations to observe on-site assessments, as described in Appendix L, of their own laboratories as on-the-job training.

(14) Observing DCPH-Aberdeen or third-party accredited laboratory assessments as necessary.

(15) Providing technical support and training as requested on sampling for drinking water compliance samples.

(16) Reviewing proficiency testing results for all WQOC-approved on-site laboratories on an annual basis and reviewing proficiency testing results for third-party laboratories on a biennial basis, as described in Appendix L and Appendix M. The WQOC Laboratory Authority may review and approve proficiency testing results outside of the minimum two-year range for third-party laboratories on a case-by-case basis.

(17) Recommending the revocation of laboratory verification or approval for any laboratory that does not continue to meet the requirements of this manual. The WQOC Laboratory Authority will issue an official memorandum to the WQOC Chair recommending revocation of the laboratory's verification (third-party accredited laboratories) or approval (on-site compliance laboratories).

b. Region Water Quality Board. The Region Water Quality Board (RWQB), with assistance from the WQOC Laboratory Authority, is responsible for working with installations to

ensure that all laboratories meet the requirements of this chapter and notifying the WQOC Laboratory Authority of any issues that may arise. RWQB responsibilities include:

(1) Coordinating with installations and WQOC-approved laboratories for drinking water sampling and analysis work when practical.

(2) Assisting installation laboratories with maintaining compliance with this chapter.

(3) Collaborating with installations to determine laboratory contracting needs, appropriate scope, parameters and template language for contracts, and assisting with contract award and administration to ensure laboratory contracts meet the requirements contained in this chapter.

(4) Assisting with data calls and provide input to assist the WQOC.

(5) Participating in assessment of installation laboratories and observing other overseas laboratory assessments as necessary.

(6) Communicating issues with sample collection, sample processing, data reporting, failing PT samples or other issues with contracted laboratories to the WQOC Laboratory Authority.

(7) Tracking expirations of all WQOC verified third-party accredited laboratories used by the region, in coordination with the Installation Water Quality Boards (IWQB), and ensuring these laboratories' accreditation credentials are submitted for review to the WQOC Laboratory Authority prior to expiration per the third-party laboratory verification process (Appendix M).

(8) Providing an accurate list to the WQOC Laboratory Authority of the parameters tested by the installation bench laboratories.

c. Installation Water Quality Board. The IWQB is responsible for working with installations and notifying the RWQB of any issues that may arise. IWQB responsibilities include:

(1) When a Region-wide laboratory contract is not in place, working with the RWQB in developing contracts with DCPH-Aberdeen, other verified accredited laboratories or laboratories verified by the WQOC Laboratory Authority and approved by the WQOC Chair.

(2) Communicating issues with sample collection, sample processing, data reporting, failing PT samples or other issues with contracted laboratories to the RWQB.

(3) Ensuring that installation laboratories comply with this chapter and reference (a), through evaluation during internal environmental management system, and

environmental quality assurance audits.

(4) Assisting with data calls and informing the RWQB of changes to the inventory of approved laboratories.

(5) Tracking expirations of all WQOC verified third-party accredited laboratories used by the installation, in coordination with the RWQB, and ensuring these laboratories' accreditation credentials are submitted for review to the WQOC Laboratory Authority prior to expiration per the third-party laboratory verification process (Appendix M).

(6) Provide an accurate list to the RWQB of the parameters tested by the installation bench laboratories.

4. Use of Defense Centers for Public Health-Aberdeen or Third-Party Accredited Laboratories

a. Requirements. DCPH-Aberdeen and third-party accredited laboratories using EPA-approved methodology (or equivalent) listed in this section are not subject to the WQOC ODW Laboratory Approval Process in Appendix L. The WQOC Laboratory Authority will verify the capabilities and accreditation of these laboratories. However, each IWQB is responsible for ensuring third-party accredited laboratories are meeting the following requirements in subparagraphs 4.a.(1) through 4.a.(6):

(1) Submitting accreditation credentials and supporting documentation to the WQOC Laboratory Authority for acceptance by the WQOC Chair per the verification process detailed in Appendix M.

(2) Responding to installation, region or WQOC Laboratory Authority requests for accreditation documentation.

(3) Conducting biennial PTs for all analytes verified by the WQOC Laboratory Authority and reporting any failures of their accreditation-required PT samples to the WQOC Laboratory Authority.

(4) Participating in an on-site visit conducted by the WQOC Laboratory Authority or RWQB/IWQB if deemed necessary.

(5) Using the methods specified in Chapter 2. The EPA Office of Water provides a list of all the analysis methods, which is available at www.epa.gov/dwanalyticalmethods. Use of any methods not on the EPA's list of approved drinking water methods must be evaluated by the WQOC Laboratory Authority to determine equivalency. RWQBs must submit the method Standard Operating Procedures (SOPs) in English to the WQOC Laboratory Authority for review.

(6) Ensuring that sampling personnel are appropriately trained as defined in the respective quality system. Navy personnel and contractors conducting sampling, prior to analysis by a third-party or in support of an onsite laboratory, must also be appropriately trained in the areas listed in subparagraphs 4.a.(6)(a) through 4.a.(6)(e). Required training can be achieved through completion of the Environmental Quality Sampling (A4A-0026) course sponsored by Naval Civil Engineer Corps Officers School, completion of Naval Sea Systems Command (NAVSEA) Laboratory Quality and Accreditation Office (LQAO)'s overseas drinking water sampling course, or via development of sampling standard operating procedures that cover, at a minimum, the following training topics:

(a) Basic sampling techniques such as grab sampling, composite sampling, how to avoid contamination and use of preservatives.

(b) Specific sampling techniques for drinking water as required, such as bacteriological and chemical sampling.

(c) Completion of sampling documentation.

(d) Health and safety training.

(e) Ethics training.

b. Revocation of Verification Status. In addition to the requirements for third-party accredited laboratories listed in subparagraphs 4.a.(1) through 4.a.(6), both DCPH-Aberdeen and third-party accredited laboratories can have their verification status revoked for any of the following reasons:

(1) Failing to maintain third-party accreditation status.

(2) Failing to satisfy that the laboratory is maintaining the required standard of quality.

(3) Failing to report compliance data to the installation in a timely manner, thereby preventing compliance with regulations and endangering public health. Data that indicates the potential to exceed a Maximum Contaminant Level (MCL) will be reported in compliance with Chapter 5 of this manual to allow preparation of mandated public notifications.

(4) Falsifying data or engaging in other deceptive practices (e.g., reporting PT data from another laboratory as its own).

(5) Failing to use the analytical methodology specified in Chapter 2 or a WQOC-approved equivalent.

(6) Failing to analyze a PT sample for a particular contaminant within the acceptance limits specified by the PT provider.

- (7) Failing to verify that the laboratory has corrected identified deviations.
- (8) Refusing to participate in an on-site visit.
- (9) Failing to adhere to contract or agreement performance measures.
- (10) Failing to submit method SOPs that are crucial for determining method equivalency.

c. Defense Centers for Public Health-Aberdeen. Overseas installations may use accredited DCPH-Aberdeen laboratories if available. DCPH-Aberdeen has laboratories in the U.S. (Aberdeen, Maryland), Europe (Germany) and the Pacific (Japan). All DCPH-Aberdeen laboratories are accredited by an ISO 17011 ILAC signatory and participate in drinking water PT programs requiring verification of certified methods for analysis. However, installations selecting this option should confirm that the DCPH-Aberdeen laboratories meet host nation requirements if using them for additional sampling required by a host nation FGS. In addition to ensuring that the DCPH-Aberdeen laboratories can meet host nation requirements, installations need to ensure that use of the DCPH-Aberdeen laboratories is logistically possible (e.g., shipping availability and acceptable holding times and temperatures). DCPH-Aberdeen laboratories are required to follow the same third-party laboratory verification process detailed in Appendix M.

d. Contracted Stateside Laboratories. Overseas installations may use stateside laboratories certified by state SDWA laboratory certification programs (this is a separate approval process from the one described in Appendix L for non-accredited laboratories). Applications from installations requesting this option will be reviewed and approved on a case-by-case basis, with consideration of the implications regarding holding times, security, cost and logistics. Split samples will be sent to local laboratories when required by host nations. Split samples must be sent to an ISO/IEC 17025-accredited laboratory or WQOC approved laboratory using the same approved EPA methodology or equivalent. To obtain approval, the installation must provide evidence of the stateside laboratory certification to the WQOC Laboratory Authority. The WQOC verification process for third-party accredited laboratories, including contracted stateside laboratories, is outlined in Appendix M.

e. Overseas Laboratories. Contracted offsite laboratories must comply with reference (a) and be accredited in the relevant analytical methods referenced in Chapter 2 of this manual (or equivalent), by accreditation bodies that are signatories to the ILAC Mutual Recognition Arrangement (a list of signatories is available at <http://ilac.org/ilac-mra-and-signatories>). Additional information on DoD policies for contracting with environmental laboratories can be found in reference (m). The WQOC Laboratory Authority verification process for third-party accredited laboratories, including overseas laboratories, is outlined in Appendix M.

5. Installation Bench Laboratories. Installation laboratories meeting the definition of “Bench Laboratory” must comply with reference (a) and undergo annual assessments by the RWQB and

be reviewed during sanitary surveys by the WQOC, outlined in Chapter 8, paragraph 4. However, Bench Laboratories do not have to be approved by the WQOC Laboratory Authority or verified by the WQOC Chair. A laboratory performing compliance sampling does not meet the definition of “Bench Laboratory,” and would instead be classified as an “Installation Compliance Laboratory,” which would require compliance with the requirements of Appendix L. While conducting PTs is not required for bench laboratories, the installation must establish a written procedure for monitoring the validity of results if annual PTs are not performed. This procedure may include, but is not limited to, the monitoring practices outlined in subparagraph 5.a through 5.k. The procedure must also include guidance on what corrections or corrective actions will take place if any of these monitoring practices fail and how those actions will be formally tracked and documented.

- a. Use of reference materials or quality control materials.
- b. Use of alternative instrumentation that has been calibrated to provide traceable results.
- c. Functional check(s) of measuring and testing equipment.
- d. Use of check or working standards with control charts, where applicable.
- e. Intermediate checks on measuring equipment.
- f. Replicate tests or calibrations using the same or different methods.
- g. Retesting or recalibration of retained items.
- h. Correlation of results for different characteristics of an item.
- i. Review of reported results.
- j. Intra-laboratory comparisons.
- k. Testing of blind sample(s).

6. Records Management. The WQOC ensures that records related to compliance with this chapter and associated appendices are uploaded to the Navy ODW Data Repository (see chapter 12). Records may include a list of WQOC Chair-approved laboratories, on-site laboratory assessments and the annual report. Additionally, IWQBs should upload checklists, corrective action reports, final reports, certificates, PT study results and related documents. The Installation Compliance Laboratory and Bench Laboratory will maintain copies of all records for a minimum of five years.

CHAPTER 5 REPORTING REQUIREMENTS

1. General. The Navy Overseas Drinking Water (ODW) Program relies on proper reporting protocol to ensure water quality standards are being met and issues are addressed to protect human health. This chapter establishes reporting requirements for Installation Water Quality Boards (IWQB), Region Water Quality Boards (RWQB) and the Water Quality Oversight Council (WQOC) to evaluate and improve compliance with Navy ODW Program policies.

2. Reporting Hierarchy. While the Navy chain of command remains applicable, IWQBs, RWQBs and the WQOC rely on reporting of critical information in a timely manner.

a. The IWQB will report routine as well as critical information to the RWQB.

b. The RWQB will report routine as well as critical information to the WQOC.

c. The WQOC will report routine as well as critical information to Commander, Navy Installations Command (CNIC), who serves as the Navy Executive Agent. Conversely, the WQOC will ensure effective, efficient communication to the RWQBs, and the RWQBs will ensure effective, efficient communication to the IWQBs.

d. The Navy Operator Certification Authority (NOCA), Technical Advisory Board (TAB) and WQOC Laboratory Authority will ensure frequent, effective reporting and communications to the WQOC Chair.

3. Reporting to Evaluate Compliance. ODW data will be reported per requirements in this manual and other program instructions via the Navy Environmental Portal (EPR), which includes the Navy ODW Repository. Specific reporting requirements are specified below.

a. Navy ODW Requirements Plan of Action and Milestones. The Navy ODW Requirements Plan of Action and Milestones (POA&M) tracks drinking water system deficiencies identified through sanitary surveys.

(1) The WQOC will add new deficiencies to the Navy ODW Requirements POA&M and report the status of water system significant deficiencies to the WQOC stakeholders on a quarterly basis.

(2) At least quarterly, the IWQBs will update the information (e.g., corrective actions, funding requirements and completion dates) associated with each open deficiency.

(3) At least quarterly, the RWQBs will validate the changes made by the IWQBs and close out deficiencies and notify the WQOC when complete.

b. Consumer Confidence Reports. Drinking water systems located on all applicable overseas Navy installations, facilities and leased properties (including Navy housing), will develop and provide to their consumers annual reports on the quality of the water delivered by each system. Each report must contain data collected during the previous calendar year and any relevant data from prior years. These Consumer Confidence Reports (CCRs) will be developed and issued with the following requirements:

- (1) Written in both English and host nation language.
- (2) Distributed by 1 July of every calendar year.
- (3) At a minimum, content of the reports will include the following information:
 - (a) Source of the water delivered (e.g., surface water or ground water).
 - (b) Any significant sources of contamination in the source water and a brief summary of the system's susceptibility to potential sources of contamination. If water is being provided by a purveyor or city distributor, this information should be provided by the provider for inclusion.
 - (c) Parameters on contaminants regulated by the applicable final governing standard (FGS), reference (f) and Chapter 2 of this manual.
 - (d) Articulate the water system's compliance with other drinking water requirements. Non-compliance with surface water treatment requirements detailed in Chapter 2 of this manual should be included in the CCR, with a description of the plan for compliance and current status.
 - (e) Provide an educational statement for vulnerable populations.
 - (f) Provide educational information on nitrite, arsenic, or lead in areas where these contaminants may be a concern.
 - (g) Provide phone numbers for additional sources of information including the installation Public Works Department (PWD) point of contact (POC).
- (4) CCRs will be made available to consumers by posting to the CNIC-sponsored installation website and homepages.
- (5) CCRs must also be delivered directly to consumers via one or more of the following delivery methods (the direct delivery requirement is in addition to the requirement to post the CCR on the CNIC installation website):
 - (a) Installation newspaper.

- (b) All-Hands emails.
- (c) Plans of the Day or Week.
- (d) Housing newsletters.

(6) CCRs may also be delivered by other means as necessary to reach system customers. The following methods can be used to deliver information; however, they do not satisfy the direct delivery requirement and should not be the primary source for information:

- (a) Use of social media (e.g., Twitter/X, Facebook)
- (b) Automated phone calls (e.g., emergency telephone notification systems)
- (c) Websites that do not take consumers directly to the entire CCR

(7) All IWQBs must be committed to making a “good faith effort” to reach all consumers being supplied water during the previous calendar year.

(8) The U.S. Environmental Protection Agency (EPA) provides guidance for water suppliers in the “Preparing your Drinking Water Consumer Confidence Report,” available at epa.gov/sites/default/files/2014-05/documents/guide_ccr_forwatersuppliers.pdf or review the U.S. EPA website for formatting assistance at https://ofmpub.epa.gov/apex/safewater/f?p=140:LOGIN_DESKTOP.

c. System Inventory. IWQBs will regularly assess ODW system inventories. IWQBs will report an official system inventory to the WQOC via the RWQB for review and approval through an annual tasker issued by the WQOC at the beginning of each fiscal year to capture inventory data for the previous fiscal year. If system inventories change during a fiscal year, these updates will be provided to the WQOC via official letterhead.

d. Chemical Inventory. RWQBs will report a chemical inventory to the WQOC via an annual tasker and upload the inventory to the Navy ODW Data Repository. The inventory will identify treatment chemicals, and the associated certifications organized by installation water system. Refer to Chapter 2 for drinking water treatment chemical certification requirements.

e. Stakeholders and Region Water Quality Board Updates

(1) The WQOC will update the ODW program stakeholders (defined in Chapter 1) on the ODW Program status in quarterly stakeholder briefs. The stakeholder briefs will include information on overall system statuses, water quality exceedances, system outages, Certificate to Operate (CTO) updates, Operator in Responsible Charge (ORC) updates, significant deficiency investment requirements, fiscal year objectives status and any other relevant information.

(2) The RWQB will report to the WQOC quarterly. The RWQB briefs will include information on water quality exceedances, system outages, Requirements POA&M updates, updates on significant deficiency closure progress and timelines, CTO status, current issues, construction updates, deficiency investment requirements, and any other relevant information.

f. Plans for New System or Modifications. Plans for new ODW systems or modifications to existing systems will be reported by the RWQB to the WQOC in the RWQB quarterly updates.

g. Water Treatment and/or Distribution System Operating Records. Operating logs and related operational data recorded for Navy water systems will follow the standard operating procedures and will be made available for ad hoc reporting to the RWQB and WQOC. IWQBs will also upload operational data to the Navy ODW Data Repository monthly.

h. Hauled Drinking Water Log. Installations hauling water will upload completed hauled drinking water logs to the Navy ODW Data Repository quarterly.

i. Analytical Results. IWQBs will promptly report analytical results pertaining to active Maximum Contaminant Level (MCL) exceedances to the WQOC via the RWQB. IWQBs will document and track all analytical results and upload the data to the Navy ODW Data Repository monthly.

j. Maximum Contaminant Level Exceedances and Other Drinking Water Issues

(1) MCL exceedances or any drinking water issue that has the potential to threaten public health will be reported immediately by IWQB members to the installation Commanding Officer (CO), RWQB and any other key IWQB members. This includes any other potential actions or incidences that indicate the water is not Fit for Human Consumption (FFHC) or there is a risk of not maintaining FFHC status such as contamination events that do not necessarily fall under normal required sampling and MCL exceedances. The IWQB has no later than 24 hours from the discovery of an exceedance or critical drinking water issue to report to the RWQB. Per Chapter 1 of this manual, the exceedance must be reported to the Naval Facilities Engineering Systems Command (NAVFAC) Environmental point of contact on the RWQB.

(2) The RWQB will report the exceedance or critical drinking water issue to the WQOC no later than 24 hours from the discovery and provide updates on the situation. The RWQB must report the exceedance to the NAVFAC Headquarters (HQ) Environmental, NAVFAC HQ Public Works, CNIC points of contact on the WQOC, and Navy Marine Corps Force Health Protection Command (NMCFHPC) points of contact on the WQOC. The status of and updates to MCL exceedances will also be reported in the RWQB quarterly update briefs and quarterly stakeholders' briefs.

(3) At a minimum, information reported on MCL exceedances or other critical drinking water issues will contain:

- (a) Water systems and sites impacted
- (b) Description and cause of the exceedance/issue
- (c) Date of the exceedance/issue
- (d) Follow up testing, corrective actions taken and the expected closure date
- (e) Any impacts to human health or capacity of water provided

k. Special Purpose Samples. Special samples are collected during repairs, responses to complaints, or for other maintenance reasons. Collection of these types of samples can be necessary to ensure that coliforms have not entered the distribution system as a result of events such as installation of new mains, main break repairs, or routine maintenance. Special samples that exceed an MCL require notification and consultation with the appropriate medical authority just as a compliance sample.

l. System Outages and Equipment Failure. IWQBs will promptly report system outages and equipment failures to the WQOC via the RWQB. System outages that meet or exceed eight hours in duration must be reported and follow requirements defined in reference (n). System outages will also be reported in the quarterly stakeholders and RWQB quarterly update briefs. At a minimum, information reported on system outages will include the following items:

- (1) Water systems, sites, and populations impacted
- (2) Description and cause of the outage
- (3) Date of the outage and duration
- (4) Corrective actions taken and the expected closure date
- (5) Any impacts to human health or capacity of water provided

m. Sanitary Survey Request for Information. To reduce the burden of uploading all sanitary survey request for information (RFI) data once every 3 years, installations will upload RFI data to the Navy ODW Data Repository on an annual basis for review. The WQOC will continue to issue formal sanitary survey RFIs in advance of each sanitary survey to ensure all required information and documentation is captured prior to the onsite assessment.

4. Public Notification and Drinking Water Advisories

a. Public Notification. If an installation water system does not meet the required primary drinking water standards, thus exceeding the established MCLs and resulting in non-compliance, the installation will implement the public notification process as defined in reference (o) and required by reference (a). This does not obviate the existing requirements to meet FGS, reference (b) or International Agreement requirements for public notification as applicable. When acute health effects exist with a water quality violation, the IWQB will notify the installation CO immediately. Per reference (a), the Preventative Medicine Authority (PMA), in consultation with NMCFHPC, will provide public health advice and consultation to the installation CO and IWQB regarding water quality violations. If the installation CO decides that the water is not FFHC following this consultation, an alternate water source will be provided. If the installation CO determines an alternate water supply is necessary, but desires continued limited other consumptive uses (e.g., hand washing, showering), the installation CO must request a public health risk assessment from the NMCFHPC.

b. Drinking Water Advisory. Drinking water advisories are issued when an installation's water quality may be compromised. The drinking water regulations referenced in Chapter 2 detail when issuance of advisories is required. Examples of drinking water advisories include boil water, do not drink or do not use notices, or other informational notices. The Centers for Disease Control and Prevention (CDC) provides a "Drinking Water Advisory Communication Toolbox" for guidance, available at <https://www.cdc.gov/healthywater/emergency/dwa-comm-toolbox/index.html>.

5. Risk and Resilience Assessments and Emergency Response Plans

a. Risk and Resilience Assessments. Each installation will update its risk and resilience assessment (RRA) every five years and the RRA must account for each installation ODW system. RRAs evaluate the vulnerabilities, threats and consequences from potential hazards. These plans will be inspected by sanitary survey teams every 3 years. For additional guidance on RRAs, refer to <https://www.epa.gov/waterresilience/awia-section-2013#RRA>.

b. Emergency Response Plans. Six months after the RRA is updated, each installation must develop or update an Emergency Response Plan (ERP). ERPs will include actions and equipment to lessen the impact of a malevolent act or natural hazard, including alternative water sources, relocating intakes and flood protection barriers. ERPs must account for each installation ODW system and must be updated every five years at a minimum. These plans will be inspected by sanitary survey teams every 3 years. For guidance on additional ERPs, refer to <https://www.epa.gov/waterresilience/awia-section-2013#ERP>.

c. Table-Top Exercises. Each year, all installations will complete an ERP table-top exercise (TTX) of an installation ODW system (at least one or more), in coordination with N3, and submit an After Action Report and Improvement Plan for each table-top exercise to CNIC by the end of the fiscal year. If any issues or weaknesses in the ERP are identified during the annual TTX (e.g., procedures, roles and responsibilities, training), the IWQB must include a corrective

action plan within the IP to update the ERP to address these issues within three months of the TTX. Installations are advised to use U.S. EPA's Tabletop Exercise Tool for Drinking Water and Wastewater Utilities (TTX Tool) (<https://www.epa.gov/waterresilience/develop-and-conduct-water-resilience-tabletop-exercise-water-utilities>), which provides users with the resources to plan, conduct and evaluate tabletop exercises that focus on Water Sector-related incidents and challenges.

CHAPTER 6 ENFORCEMENT

1. General. Compliance with Navy Overseas Drinking Water (ODW) Program requirements ensures Navy ODW systems are equally as protective of public health as U.S. drinking water systems. The Water Quality Oversight Council (WQOC), as directed by Commander, Navy Installation Command (CNIC), will take action to address issues that result from non-compliance with the Navy ODW Program to include the issuance of compliance orders and recommendations to revoke operator certification or certificates to operate. Regular auditing of the Navy ODW system ensures key elements are routinely evaluated and timely identification of root cause is determined to prevent future occurrences.

2. Compliance Evaluation. Navy installations overseas will use compliance evaluation mechanisms such as internal and external Environmental Management System/Environmental Quality Assessments, Sanitary Surveys, System Self-Assessments, Utilities Assessments, Water Master Plans, Water System Vulnerability Assessments, sampling and monitoring, and operational data to ensure compliance with Navy requirements. Installations will upload applicable evaluation results to the Navy ODW Data Repository. The WQOC will apply evaluation protocols, as established in reference (a), to those systems identified as part of the Navy ODW Program.

3. Compliance Order

a. The WQOC will determine non-compliance and may issue a compliance order through the chain of command to the Region Water Quality Board (RWQB) for an installation in its area of responsibility. A compliance order may be issued if an installation fails to meet critical drinking water requirements such as the issuance of a public notification within the required timeline after a drinking water exceedance. The WQOC will request a corrective action plan and timeline from the affected installation(s). These will be validated by the RWQB before final approval.

b. The compliance order will include the reason or reasons for the order, the requirements or conditions that must be met to rescind the order and request a Plan of Action and Milestones (POA&M) to address the non-compliance. The order will also include a timeframe to appeal the order in writing, not to exceed 30 days from the receipt of the order. The WQOC cannot accept or grant variances that are originally granted from the Office of the Chief of Naval Operations (OPNAV) N4.

c. Navy policy is to promptly correct non-compliance with applicable requirements. The WQOC must determine whether the compliance order POA&M is appropriate and ensure the most immediate approach to mitigate the issue is achieved.

4. Variations. Installation Water Quality Boards (IWQB) may request variations from the requirements in this manual to help achieve ODW compliance. Variations allow eligible systems temporary ODW policy nonconformity on the condition that the drinking water quality is still protective of public health and maintains compliance with the reference (a) and host nation final governing standards. Variations from provisions of ODW requirements may be granted by CNIC, as the Navy Executive Agent, except for any variations from maximum contaminant level or treatment technique requirements. Variations are granted based on a temporary, short-term basis; installations will work to be compliant with ODW policy. Variations granted from CNIC ODW requirements do not absolve compliance with reference (b) or final governing standards (FGS).

a. Requests for variations from provisions of ODW requirements will be reviewed and submitted to the WQOC via the RWQB. The WQOC will recommend approval or disapproval of a requested variance to the Navy Executive Agent, who will be the final signatory to endorse recommendations.

b. Requests for variations should include, at a minimum, the following information:

(1) A description of the type of variance being requested.

(2) Justification for the type of variance being requested, including lack of feasible alternatives.

(3) The proposed date by which the installation will achieve compliance with the requirements in this manual.

(4) A compliance plan detailing the methods by which the installation will achieve compliance with the requirements in this manual.

CHAPTER 7 DETERMINATION OF FIT FOR HUMAN CONSUMPTION

1. General. The Navy Overseas Drinking Water (ODW) Program will use of the term “fit for human consumption (FFHC)” vice “potability” for water quality policy matters. FFHC is the term used by the Bureau of Medicine and Surgery, defined in reference (g) as water that is safe for drinking, cooking, bathing, showering, dishwashing and maintaining oral hygiene. Use of the term “potability” creates confusion mainly because it is not used consistently. Currently, reference (b) and final governing standards (FGS) define “potable water” as water that has been examined and treated to meet the drinking water standards as defined in the respective documents and approved as potable by the appropriate Department of Defense (DoD) medical authority.

2. Procedure

a. An ODW system is FFHC if it meets the required primary drinking water quality standards, which are the health based maximum contaminant level (MCL) requirements, as defined in FGS, reference (b) and Chapter 2 of this manual. This statement aligns with U.S. Environmental Protection Agency (EPA) regulations and Navy policy and is applicable to installation water systems regardless of whether an installation water system produces or purchases water for human consumption.

b. All new systems or systems that use a new source of water will demonstrate compliance with the Chapter 2 MCLs. The period of testing is two consecutive quarterly cycles for groundwater, and four consecutive quarterly cycles for surface water. The system must also comply with the initial sampling frequencies specified by the host nation FGS and reference (b) to ensure a system can demonstrate compliance with the MCLs. Routine and increased monitoring frequencies will be conducted per the requirements of the FGS, reference (b) and Chapter 2 of this manual.

c. The Installation Water Quality Board (IWQB), chaired by the installation Commanding Officer (CO), will review installation water quality data. The installation will submit all water quality data on the Navy ODW Data Repository. The installation CO certifies the system as FFHC based on consultation with the installation Preventive Medicine Authority (PMA), Navy Marine Corps Force Health Protection Command (NMCFHPC), and the recommendation of the IWQB.

d. This decision to declare water FFHC will be documented and uploaded to the Navy ODW Data Repository as a Record of Decision for Water Quality signed by the IWQB Chair.

e. An ODW system is not FFHC if it does not meet health based MCLs.

f. At a minimum, the following communication procedures should be used to identify a system as FFHC:

(1) The installation CO will consult with IWQB members, specifically environmental, installation PMA, NMCFHPC, and utilities at a minimum, and obtain their recommendations based on documented evidence of compliance with drinking water standards (i.e., sampling and analysis results and records). The recommendation from the installation PMA and NMCFHPC would also need to be considered an “approval” of their analysis of the quality of the water for human consumption, in order to comply with the FGS and reference (b) requirements.

(2) After IWQB consultation, the installation CO must inform the Region Water Quality Board (RWQB), and the RWQB must inform the Water Quality Oversight Council (WQOC). Both the RWQB and WQOC have the authority to review and advise on the situation, as needed.

(3) Upon receipt of the consultation and recommendations from the IWQB, the installation CO has the authority to make the determination of FFHC for the installation and must document the decision and post that record of decision to the Navy ODW Data Repository.

(4) If the WQOC or RWQB desire to challenge a determination made by the installation CO, the matter will be taken to Commander, Navy Installations Command (CNIC), as the Navy Executive Agent for Drinking Water Ashore, for adjudication.

g. The only exception to bypassing the communication process described in subparagraph 2.f. regards matters of immediate public health concern, for which the Operator in Responsible Charge (ORC), Public Works Officer (PWO), installation CO or Region Commander has the authority to take immediate, effective emergency actions, depending on the urgency of the situation. These would be for Tier 1 notifications which require 24-hour notification. Consultations as described in subparagraph 2.f. must still take place once the emergency response is underway.

CHAPTER 8 SANITARY SURVEY EXECUTION

1. General

a. Sanitary surveys of Navy Overseas Drinking Water (ODW) systems will be conducted under the authorization of the Water Quality Oversight Council (WQOC) following the criteria outlined in this chapter.

b. All ODW systems will be evaluated by a sanitary survey every three years and a report of the survey will be delivered within 90 days from conclusion of the site visits.

2. Sanitary Surveys

a. The standard survey scope of work (SOW) will be managed by the WQOC. This SOW should be utilized on all sanitary surveys regardless of team make-up. The SOW changes frequently; a current version of this document can be found on the Navy Drinking Water FlankSpeed SharePoint website at <https://flankspeed.sharepoint-mil.us/sites/CNICHQ/ODW/SitePages/ProjectHome.aspx>.

b. Every sanitary survey evaluates the adequacy and compliance status of the drinking water sources, facilities, equipment, operation and maintenance, and management, for producing and distributing drinking water that is Fit for Human Consumption (FFHC). This survey is considered the central element of the Certificate to Operate (CTO) Program. As part of the survey, and as outlined in reference (p), the surveyors must evaluate, address, and document the compliance, safety, reliability, and capability of the following survey elements.

- (1) Water Source
- (2) Water Treatment System
- (3) Distribution System
- (4) Finished Water Storage
- (5) Pumps, Pump Facilities & Controls
- (6) Monitoring, Reporting, and Data Verification
- (7) Water System Management & Operations
- (8) Operator Training & Certification

c. The following items will be evaluated to ensure compliance with references (a) and (b), and the requirements of this manual.

- (1) Raw Water Storage
- (2) Chemicals utilized must meet U.S. requirements, or equivalent
- (3) Approved laboratories are used for all compliance testing
- (4) Review of any applicable final governing standards (FGS) requirements not listed below

d. References (a) and (b), or FGS, require that the sanitary survey of water treatment systems include the following elements:

- (1) Verification and reevaluation of vulnerability assessments, watershed protection programs and wellhead protection programs, as applicable
- (2) Examination of the source water physical components and condition
- (3) Verification of schematic diagrams of the current treatment processes and examination and evaluation of the adequacy and appropriateness of all elements of such treatment processes.
- (4) Examination and evaluation of the monitoring, operation and maintenance of the treatment system including the condition and reliability of equipment, operator qualifications, use of approved chemicals, recordkeeping, process control, and safety programs.
- (5) Evaluation of the ability of the treatment plant to respond to changes in raw water fluctuations
- (6) Evaluation of the treatment plant's emergency power supply and security measures
- (7) Review of operations, water quality monitoring, and compliance records

e. Additionally, reference (a) requires that the distribution system sanitary survey inspection include a review of the operations and maintenance program to ensure attention to the following areas of concern:

- (1) Elimination of unneeded or excess storage
- (2) Adequate turnover of storage tanks

- (3) Storage tank cleaning and maintenance
- (4) Adequate disinfection practices during all main repairs and replacement
- (5) If applicable, an effective corrosion control program
- (6) A comprehensive cross connection control and backflow prevention program
- (7) A valve and hydrant exercise program
- (8) An adequate water quality monitoring program that achieves compliance with the appropriate regulations and provides for effective water quality control
- (9) An adequate unidirectional flushing program

f. Sanitary surveys will be conducted every three years for Navy ODW systems to verify the on-going function and overall condition of the water supply system, regardless of the source water classification. This frequency may be increased following source or treated water contamination, reports of illness that may be from waterborne sources, an extended interruption in service resulting in loss of pressure in the distribution system, repeated Maximum Contaminant Level (MCL) exceedances, or other incidents that may compromise the water system or water quality.

g. Appendix C contains a standardized form that should be used during the sanitary survey and maintained on the Navy ODW Data Repository to obtain descriptive information on each water system.

h. Sanitary Survey Team. The sanitary survey team will consist of the following members (subparagraphs 2.h.(1) through 2.h.(4)):

(1) Sanitary Survey Team Lead. A WQOC-approved Naval Facilities Engineering Systems Command (NAVFAC) Atlantic (LANT) or Pacific (PAC) Echelon III drinking water subject matter expert (SME) or WQOC-approved Headquarters (HQ) staff member. If the Team Lead is an HQ staff member, the sanitary survey team will include a WQOC-approved NAVFAC Echelon III (LANT or PAC) staff member.

(2) Architect/Engineer Contractors. Technical drinking water SMEs (typically two or three depending on the ODW system(s) size) contracted to perform the sanitary survey assessment in the field by NAVFAC LANT or PAC.

(3) Navy Medicine Surveyor. A representative from Navy and Marine Corps Force Health Protection Command (NMCFHPC) or Navy Bureau of Medicine and Surgery (BUMED) assigned to perform the medical asset component of the inspection.

(4) Laboratory Authority Surveyor (as needed). A representative from Naval Sea Systems Command (NAVSEA) Laboratory Quality and Accreditation Office (LQAO) assigned to perform the laboratory assessment component of the survey if the installation uses anon-site drinking water laboratory.

i. Roles and Responsibilities of sanitary survey team members, including official members and observers.

(1) Sanitary Survey Team Lead will:

- (a) Act as the arbiter of all actions and decisions made during the assessment.
- (b) Represent the regulatory authority on the sanitary survey team.
- (c) Complete sanitary survey training or other equivalent on-the-job training prior to acting as Team Lead.
- (d) Act only in a regulatory authority role, and does not exercise other job responsibilities, such as reach back support, while serving as Team Lead.
- (e) Ensure the sanitary survey focuses on the task of documenting deficiencies throughout the field work process.
- (f) Coordinate with the region/installation to approve the number of observers allowed to participate in the sanitary survey.
- (g) Advise the observers on limits of engagement with the sanitary survey team.
- (h) Ensure the number of observers is considerate of the host installation size.
- (i) Ensure the Contracting Officer Representative (COR) arranges and participates in a kick-off conference call/meeting with the Installation to discuss project logistics, coordination requirements, project schedule, data/information needs, and preparation of onsite sanitary survey inspections.
- (j) Ensure the COR prepared the sanitary survey team's request for information (RFI), tracks and reviews RFI response from the installation.
- (k) Present the in-brief and out-brief (associated with the field work) to the installation.
- (l) Lead the WQOC Certificate to Operate (CTO) Review Team.

(2) Sanitary Survey COR will:

(a) Manage Architect/Engineer (A/E) contractors and ensure they are implementing the sanitary survey SOW.

(b) Act only in a regulatory authority role, and will not exercise other job responsibilities, such as reach back support during the sanitary survey.

(c) Coordinate schedule/SOW changes with the Team Lead.

(d) Coordinate and schedule meetings, site access, onsite interviews, and facility inspections between the survey team members and the installation personnel.

(e) Arrange and participate in a kick-off conference call/meeting with the installation to discuss project logistics, coordination requirements, project schedule, data/information needs, and preparation of onsite sanitary survey inspections.

(f) Prepare the sanitary survey team's RFI, and track and review RFI response from the installation. Copy Team Lead and Commander, Navy Installations Command (CNIC) HQ on all RFI requests.

(g) Participate in the in-brief and out-brief to the installation at the discretion of the Team Lead.

(h) Provide CNIC HQ with the final sanitary survey deficiency list and report

(i) Participate in the WQOC CTO Review Team.

(j) Will not discuss specific projects to address deficiencies until out-brief to the installation is complete.

(k) Coordinate government reviews of draft documents.

(3) Navy Medicine Surveyor

(a) Report any medical findings considered significant to human health to the sanitary survey team and includes these findings in the sanitary survey out brief.

(b) Assess the Medical drinking water program, in support of the installation.

(c) Participate in the in-brief and out-brief to the installation to represent BUMED interests.

(d) Provide in-brief and out-brief to the Medical Officer in Charge.

(e) In coordination with the Team Lead, the Medical Lead will ensure the proper public health risk categorization is documented.

(f) Prepare the written assessment of the Medical drinking water program (this will be included in the draft and final sanitary survey reports).

(4) A/E Contractors will:

(a) Conduct sanitary survey along with the Sanitary Survey Team.

(b) Perform data reviews and generate all documentation for the sanitary survey assessment with the contract scope of work and in consultation with COR.

(c) Develop draft schedule for daily on-site activities.

(d) Prepare the in-brief and out-brief that are presented to the installation by the Team Lead.

(e) Support the Team Lead, as appropriate, during briefs

(f) Develop draft sanitary survey report, respond to comments, and finalize report.

(5) Observers will:

(a) Be permitted on sanitary surveys and may include, but are not limited to, the following Navy personnel. Observers must notify the sanitary survey team lead of their intent to observe prior to the sanitary survey. The number of observers will be considerate of the host installation size.

1. Echelon I, II, III or IV staff

2. Region or installation staff

(b) Participate in the in-brief to the installation and any sanitary survey team discussions, at the discretion of the Team Lead.

(c) Be non-sanitary survey team members that can be excluded from any discussions on sanitary survey findings by the Team Lead during the sanitary survey.

(d) Not interfere or obstruct the official sanitary survey team and their assessment process.

(e) Not interact directly with the A/E contractors unless permitted by the Team Lead.

(f) Communicate any concerns directly to the Team Lead while adhering to the rules listed in 2.i.(5)(a) through 2.i.(5)(f).

(g) The Team Lead may limit observer participation in any of the sanitary survey events (i.e., meetings, briefs) as necessary.

j. Procedure

(1) The survey report will include but is not limited to the following requirements (subparagraphs 2.j.(1)(a) through 2.j.(1)(e):

(a) Summary of source water quality and treated water quality monitoring data.

(b) Description of activities and potential sources of contamination.

(c) Description of any significant changes that have occurred since the last survey that could affect the quality of the source water.

(d) Evaluation of the system's ability to meet requirements of FGS, references (a) and (b), and this manual.

(e) Description of any significant changes that have occurred since the last survey that could affect the quality of the source water and treated water.

(2) Sanitary survey RFIs will be fulfilled by all installations on an annual basis, and all RFI data uploaded to the Navy ODW Data Repository for annual review. The WQOC will issue annual sanitary survey RFIs to each installation with the annual sanitary survey schedule to collect the documentation necessary for sanitary surveys. If the RFI is not fulfilled within the timeframe established by the WQOC prior to an installation's upcoming sanitary survey, the A/E contractors may not review the requested documentation before the survey, and it will be listed as a deficiency.

(3) Results of the sanitary survey and the associated installation Plan of Action and Milestones (POA&M) will be provided to the WQOC for review during the CTO review process.

3. Deficiencies. Deficiencies noted during the sanitary survey may be classified as significant, moderate or minor depending on the risk to public health, system operations or other concerns. The following definitions of these deficiencies are based on the guidance and examples provided in reference (p).

a. A significant deficiency is defined as:

(1) Sampling results exceeding regulatory standards for which public notice is required;
or

(2) A defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that is causing, or has the potential to cause, the introduction of contamination into the water delivered to consumers.

b. Moderate deficiencies are defined as any of the following:

(1) Sampling results exceeding regulatory standards for which public notice is not required;

(2) Any failure to physically operate the system with standard operating procedures (SOP) and plans; or

(3) Any failure to develop SOPs and plans. Examples of such plans include the Operations Plan, Master Plan, Operation and Maintenance Manual, Emergency Contingency Plan, and Bacteria Monitoring Plan.

c. Minor deficiencies are defined as any failure to satisfy established administrative requirements such as failure to maintain required records, updating of system drawings, etc.

4. Self-Assessments

a. Installation Water Quality Boards (IWQB) and Region Water Quality Boards (RWQB) are required to implement an ODW system self-assessment program to increase oversight of ODW systems and their remaining open significant deficiencies.

(1) IWQBs will perform annual self-assessments for each installation ODW system using the self-assessment checklist in Appendix C and submit the results of the self-assessments to the RWQB prior to the end of each fiscal year. At the end of each fiscal year, RWQBs must submit a summary of all completed annual IWQB ODW system self-assessments on official region letterhead to the WQOC Chair, including the completed checklists as enclosures.

(2) RWQBs will perform assessments on each ODW system 1.5 years after the system's last triennial sanitary survey using the self-assessment checklist included in Appendix C. RWQBs must submit a summary of this completed assessment on official region letterhead to the WQOC Chair, including the completed checklist as an enclosure. The results of each assessment conducted by the RWQB should be submitted to the WQOC within 30 days of assessment completion.

5. Desktop Reviews

- a. The WQOC will conduct full desktop reviews of ODW systems if the physical on-site assessment portion of the sanitary survey must be postponed or is unable to be completed.
- b. The WQOC will conduct a full desktop review of all sanitary survey RFI data submitted by the IWQB on the Navy ODW Data Repository. Dates for the desktop review will be coordinated with the RWQB and IWQB and the sanitary survey RFI will be issued by the WQOC in advance of the desktop review.
- c. Virtual interviews of the IWQB personnel will be conducted using approved online platforms (e.g., Microsoft Teams) or conference calls during the desktop review to collect additional information on system operation and management.
- d. The WQOC will produce a “full desktop review summary” within 30 days of conclusion of the review which will include a preliminary list of deficiencies following the POA&M format used in the regular on-site sanitary survey process. The summary will also identify information missing from the RFI response and issues requiring follow up during the on-site assessment portion of the sanitary survey.
- e. The full desktop review is a partial sanitary survey and does not replace, or otherwise obviate, an on-site assessment by representatives of the WQOC. If an on-site assessment cannot be completed within a year of the full desktop review, the deficiencies documented from the review will officially be added and tracked for corrective action in the ODW Requirements POA&M and a CTO recommendation will be issued on the results of the full desktop review and per Chapter 9.

CHAPTER 9

CERTIFICATES TO CONSTRUCT AND OPERATE

1. General. This chapter establishes criteria, requirements and processes for the construction or the modification of Navy Overseas Drinking Water (ODW) systems and for the Navy ODW Certificate to Operate (CTO) Program. These requirements ensure that ODW systems are planned, designed, constructed and initially operated following standards at least as stringent as those required for new or modified water systems within the typical U.S. regulatory framework. The Navy ODW CTO Program, following initial system construction and operation, establishes a standardized, consistent certification process used for all ODW systems to ensure the quality and safety of overseas drinking water.

2. Certificate to Construct

a. Applicability and Scope

(1) The Certificate to Construct (CTC) process was developed to review projects that incorporate construction of or a significant modification to an existing ODW system. The Water Quality Oversight Council (WQOC) Technical Advisory Board (TAB) will conduct all CTC reviews. Construction or significant modifications include, but are not limited to the following examples:

- (a) New source water
- (b) Treatment process changes
- (c) Addition of treatment
- (d) Additions that serve a demand increase of 20 percent or greater

(2) The CTC process is designed to be integrated into existing Navy shore facility planning, capital improvements, operations, environmental compliance and related requirements with the following objectives:

- (a) Ensuring that applicable regulatory and Navy standards are met.
- (b) Establishing a standardized and consistent review of the planning, design, and construction certification process for all overseas drinking water systems.
- (c) Ensuring that each project requiring a CTC per subparagraph 2.a.(1) incorporates the fundamental needs of water quantity and quality required to meet mission needs and compliance standards.

(d) Ensuring that each project will provide the appropriate features to accomplish project objectives inclusive of unit process/operation components, process loading rates (e.g., flow rates, chemical additives, dosages) and operational and maintenance needs (e.g., facility and equipment access, process and instrumentation, chemical storage and handling).

(e) Avoiding costly delays and facility changes during project construction phase.

(f) Ensuring that projects include adequate criteria for system start-up and provide adequate operator training and Operation and Maintenance Support Information.

(3) Each ODW project will obtain a CTC, where required by subparagraphs 2.a.(1)(a) through 2.a.(1)(d), by following the steps as outlined in subparagraphs 2.b. through 2.c. The objective of this guidance is to clarify the process and the assigned responsibilities of each of these essential steps that are required prior to requesting CTO issuance.

(4) The requirements contained herein will comply with existing established planning, design, construction and operation processes and do not obviate nor supersede existing processes and authorities. Furthermore, implementation of these requirements will minimize, to the greatest extent possible, any negative impacts to project efficiency and effectiveness.

b. Procedure

(1) Planning Phase

(a) Convene Formal WQOC TAB Preliminary Requirement Review

1. Requests for a CTC can be submitted to the TAB, via the Region Water Quality Board (RWQB), after approval by the Warrant Holder in Planning, Design, and Construction (PDC) at the region, using the TAB Submittal Request Form (Appendix C).

2. Following notification of a request, the TAB will review and participate in a planning conference to determine whether a CTC will be required and to identify applicable drinking water regulatory requirements to be met. The TAB Chair will, within seven calendar days, determine if a TAB review is required after receiving a review request from the RWQB.

(b) Existing Data Review

1. During the planning phase, the TAB will review the project elements and provide input to the development of Department of Defense (DoD) form DD 1391.

2. The TAB Chair will draft a general assessment with the findings of the review and present the requirements to the Installation Water Quality Board (IWQB) and RWQB for inclusion to the DD 1391.

(c) Request for Proposal

1. The TAB will review the request for proposal prior to the release of the solicitation, to include the scope of work, evaluation criteria and all drawings.

2. The TAB Chair will draft a general assessment with the findings of the review for the WQOC Chair's review. Following the WQOC Chair's review, the TAB Chair will provide findings to the IWQB for inclusion to the DD 1391.

(2) Design Phase

(a) Review of Conceptual Design or Preliminary Engineering Report

1. The TAB will review, with the ongoing project review process, and provide feedback on the Conceptual Design or Preliminary Engineering Report (PER) and its adequacy to meet treatment or other regulatory requirements.

2. The TAB Chair will consolidate comments from the committee and submit to the WQOC Chair for review. Following the WQOC Chair's review, the TAB Chair will notify the IWQB of the TAB recommendations on the Conceptual Design or PER.

(b) Review of Interim Design Submittals

1. Upon completion and submission of all interim design submittals (plans and specifications), the TAB will convene and review to ensure that the design meets the requirements identified during the PER.

2. The TAB Chair will consolidate comments from the committee and submit the recommendations to the IWQB on any preliminary or interim designs.

(c) Review of Request for Certificate to Construct

1. When design documents are 100 percent complete, the execution agent will submit the documents with a request for issuance of a CTC. The TAB, or its authorized representative, will review the documents for compliance with requirements established during prior reviews and ensure that all design elements meet Navy drinking water design standards.

2. Upon review of the 100 percent documents, the TAB will provide a written response within 30 calendar days of project submission and prepare a recommendation to the WQOC Chair for issuance of a CTC. If more information is required from the RWQB to make a determination, the TAB will issue a request for information (RFI) within the 30-day timeframe. If requested information is not provided and requirements are not met, the TAB may recommend disapproval of CTC issuance and recommend that design documents be modified

and resubmitted for CTC issuance. After the TAB Chair has determined that a complete package has been received, the TAB will issue a report to the WQOC Chair with comments and final recommendation within 30 days of receipt of all documents.

(d) CTC Issuance Final Determination

1. The WQOC Chair will review the recommendations from the TAB and will make a final determination and issue a CTC. If the determination conflicts with the TAB recommendation, the WQOC will notify the TAB accordingly.

2. CTC issuance will constitute approval by the WQOC to initiate construction and will have an expiration date of five years.

(3) Construction Phase

(a) Modifications to design or location. The TAB will be notified of any changes to the design or location of the facility. The TAB will review these changes and determine if evaluation for a new CTC is required.

(b) Post-Construction TAB Review of Facility Startup and Testing Results

1. Prior to startup and testing of the constructed facility or system modification, the execution agent will notify the TAB and the WQOC Chair of the schedule for startup and testing.

2. The Capital Improvements Construction Manager will provide the TAB with a list of all changes that deviate from the approved basis of design or plans and specifications, especially relating to process or controls.

3. Upon receipt of notification, the TAB will select representative(s) to witness and review testing and startup activities as appropriate. This may include witness and review of water quality testing, functional acceptance testing, reliability acceptance testing, performance acceptance testing, and for general conformance with the contract documents.

4. Following collection and review of startup and testing results, the TAB will convene, and review data collected. If startup testing results are within acceptable performance parameters with Navy drinking water standards, the TAB will prepare a recommendation to the WQOC Chair for acceptance of newly constructed facilities with a recommendation for issuance by the RWQB of an interim CTO (ICTO), valid for 18 months. If results of facility startup testing do not meet applicable requirements, the TAB may recommend that additional testing or modifications occur prior to recommendation for acceptance.

5. For ICTO application, the RWQB will provide at least six months of operating data that demonstrates that the treatment process is working as intended, including raw water data, finished water data, and plant operational data. Existing systems undergoing modification are expected to operate as normal during this six-month period and may continue supplying water for consumption as long as the system continues to meet Fit For Human Consumption (FFHC) requirements (Chapter 7).

c. Issuance of Interim CTO. Upon receipt of the notice of construction completion, the WQOC Chair will review the recommendations from the TAB, will make a final determination regarding facility or system modification acceptance, and will issue a letter of recommendation for facility acceptance and issuance of the ICTO. Once an ICTO is issued to a newly constructed or modified ODW system, the system will enter the regular three-year sanitary survey cycle and CTO process outlined in paragraph 3 of this chapter.

3. Certificate to Operate Program

a. Applicability and Scope. The CTO Program helps to ensure the quality and safety of overseas drinking water, and to ensure recommendations for improvements in drinking water system management and oversight are provided on a continuing basis. All Navy ODW systems must obtain a full CTO by resolving all system significant deficiencies. Significant, moderate and minor deficiencies are further defined in Chapter 8 of this manual.

b. CTO Program Process. The CTO process, detailed below, includes sanitary surveys under the direction of the WQOC, development of Plan of Action and Milestones (POA&M), corrective action implementation, issuance of CTO, and tracking and evaluation efforts to ensure applicable drinking water quality standards are met. The WQOC will provide recommendations for a CTO level based on its review of sanitary survey findings and associated corrective action POA&M for each overseas drinking water system, along with water quality compliance monitoring results, water operator and training certification, and documented corrective actions to address the POA&M. The final CTO will be issued by the Region Commander (REGCOM) to the installation. Specific criteria for CTO levels are defined in subparagraph 3.c.

(1) Sanitary Survey. A sanitary survey is conducted on every ODW system under the direction of the WQOC to assess existing conditions and water quality status of the system. The sanitary survey team will produce a sanitary survey report for each survey capturing all observed deficiencies for infrastructure, operation, and management aspects of drinking water systems within an installation. Details on the sanitary survey process are described in Chapter 8 of this manual. The initial and subsequent sanitary surveys, conducted on a three-year cycle, for Navy ODW systems are the most essential tool used in determining CTO level for an ODW system.

(2) Development and Finalization of POA&M. A POA&M is prepared by the IWQB and approved by the RWQB based on the list of deficiencies and findings provided by the WQOC in the sanitary survey report. The POA&M establishes corrective action methods and timelines

committed to by the installation to address deficiencies. The RWQB will also submit Operator in Responsible Charge (ORC) and Assistant Operator in Responsible Charge (AORC) training and certification documentation along with reports and data as requested by the WQOC. The POA&M will be developed and implemented within 30 calendar days of the final sanitary survey report and will be maintained on the Navy Drinking Water FlankSpeed SharePoint website at <https://flankspeed.sharepoint-mil.us/sites/CNICHQ/ODW/SitePages/ProjectHome.aspx>.

(3) Review of POA&M and Recommendation of CTO Level. The WQOC will review the POA&M approved and submitted by the RWQB and IWQB, ORC and AORC training and certification documentation, and any other requested data. Upon receipt of the POA&M and supporting documentation, the WQOC will begin the CTO review and will notify the RWQB, within 30 calendar days, via email. The RWQB and IWQB staff have 15 calendar days to address the WQOC's comments and submit the updated POA&M to the WQOC CTO Review Teams. Based on the POA&M, certifications, and other requested data, the WQOC will provide a recommendation for CTO level (full CTO, conditional CTO, or revoked CTO) within 30 calendar days after submission of the final POA&M. The following steps further define this process:

(a) Step 1. The WQOC will convene a formal review for each CTO immediately upon notification that the sanitary survey POA&M has been submitted via the Navy Drinking Water FlankSpeed SharePoint website.

(b) Step 2. Upon notification of a formal CTO review by the WQOC, the RWQB staff will either convene a concurrent CTO review or conduct a CTO review after the WQOC has issued its CTO recommendation.

(c) Step 3. The WQOC staff will develop a standard template for submitting CTO comments and use the template for all formal reviews. One template will be completed for each system being reviewed. This template is available as a form in Appendix C of this manual.

(d) Step 4. The WQOC staff will review all the supporting documents including the sanitary survey report, ORC and AORC training and certification documents, as well as other reports and data requested, to determine if all identified drinking water system and operational deficiencies have corresponding POA&Ms to provide timely corrective actions. The WQOC staff will develop comments on any requested updates to any corrective action plans and timelines for submission to the RWQB based on their review of the POA&Ms.

(e) Step 5. The CTO review and recommendation process will require a minimum of three WQOC members actively participating in the review process. The headquarters (HQ) WQOC team leader for the respective sanitary survey will be the responsible person for convening each CTO review and recommendation and coordinating with the RWQB as needed. As part of the CTO review, the HQ WQOC team leader will execute the following actions:

1. Ensure the sanitary survey report, POA&Ms for sanitary survey deficiencies, and operator certification documentation are provided to the WQOC staff participating in the review.

2. Assign review tasks to the staff, solicit, and set a deadline for initial review comments and follow up reviews.

3. Upon receipt of the written comments the HQ WQOC team lead will draft a general assessment and comments within the CTO comment template (Appendix C).

4. Upon receipt of the initial written comments from the WQOC, the RWQB will confer with the WQOC staff and adjudicate any questions on the comments.

(f) Step 6. The WQOC staff will provide comments on the initial POA&M for the RWQB and IWQB to address. The RWQB will then submit an updated POA&M to the WQOC within 15 days that addresses the WQOC staff's comments.

(g) Step 7. Upon receipt of the updated POA&M, the WQOC staff will review and confirm comments have been adequately addressed or if more information is still required in the POA&M. If more information and updates are required, the WQOC staff will submit this feedback to the RWQB for action.

(h) Step 8. Once all comments have been sufficiently addressed in the POA&M, WQOC staff will conduct a vote to determine the CTO level recommendation by referencing deficiency category classifications and guidelines for CTO levels as specified in this manual. Each participant will cast one vote and the majority vote is the final CTO recommendation.

(i) Step 9. The recommendation will be forwarded to the WQOC Chair in a draft formal letter addressed to the RWQB on official letterhead, along with documentation justifying the recommendation, to include all comment documents.

(j) Step 10. The WQOC Chair will review and approve the recommendation (or return to the WQOC staff for revision) and submit the CTO recommendation to the REGCOM via official letter.

(k) Step 11. The RWQB, upon receipt of the recommendation from the WQOC, will conduct a vote to determine the overall recommendation to the RWQB Chair. The RWQB staff will give the WQOC recommendation full consideration prior to conducting the final vote. If the determination of the RWQB conflicts with the recommendation of the WQOC, the RWQB will notify the WQOC prior to making a final recommendation.

(4) Endorsement and Issuance of CTO

(a) The final CTO is endorsed and issued by the REGCOM, who chairs the RWQB. The REGCOM has the authority to revoke a CTO as needed upon approval from the WQOC and the Navy Executive Agent for Drinking Water Ashore per subparagraph 3.c.(4) of this chapter.

1. Step 1. The REGCOM will review both the recommendations from the RWQB staff and the WQOC Chair to determine the CTO level. If recommendations are conflicting, or the REGCOM is unclear on the proper CTO level, the WQOC Chair will be consulted prior to issuance of the CTO.

2. Step 2. The REGCOM will issue the CTO via official letterhead to the IWQB Chair, with copies sent to the WQOC Chair, BUMED and NAVFAC.

3. Step 3. The IWQB will upload the CTO letter to the Navy ODW Data Repository per Chapter 12 of this manual.

(b) Not obtaining a full CTO may potentially compromise public confidence in drinking water system quality and subject the impacted installation to political pressures to resolve outstanding issues to achieve the full CTO.

(5) Implementation of the Sanitary Survey POA&M (IWQB and RWQB).

(a) Proper implementation of corrective actions listed in the Requirements POA&M is necessary to satisfy conditions of a CTO. This effort, which includes corrective actions and documentation of such work, is performed primarily by the installation personnel and IWQB with the support of the RWQB, if necessary, in the form of reach back support. All POA&M actions will be captured by the IWQB and RWQB in the Requirements POA&M. The Requirements POA&M is the comprehensive listing of all sanitary survey deficiencies maintained by all IWQBs and RWQBs, and is maintained online at the Navy Drinking Water FlankSpeed SharePoint website (<https://flankspeed.sharepoint-mil.us/sites/CNICHQ/ODW/SitePages/ProjectHome.aspx>).

(b) If an ODW system can no longer meet the approved corrective action plan and timeline for any significant deficiency documented in the POA&M after CTO recommendation issuance, the RWQB must include details of the cause of the delay and a revised corrective action plan and schedule for approval in their quarterly RWQB Update to the WQOC. Corrective action timelines for significant deficiencies cannot be revised in the POA&M prior to formally notifying the WQOC Chair and receiving approval for the revision.

(6) Compliance and System Condition Tracking (IWQB and RWQB). Compliance tracking is performed at the installation level with the support of the RWQB. This will be documented in the Navy ODW Data Repository, quarterly RWQB briefs, and system self-assessments for review by the WQOC.

c. CTO Levels and Conformance. ODW systems may obtain a full, conditional, or interim CTO, or have their CTO revoked in certain cases of non-compliance. Criteria for each CTO level includes the following:

(1) Full CTO Level

(a) No significant deficiencies, as defined in Chapter 8. This is the primary baseline requirement for all ODW systems.

(b) The commitment to resolve or correct moderate and minor deficiencies, with the terms of the POA&M and as approved by the RQWB and WQOC.

(2) Conditional CTO Level

(a) One or more outstanding significant deficiencies waiting to be corrected within the agreed upon POA&M timeframe, as approved by the RQWB and WQOC.

(b) Downgrade from the full CTO status because moderate and minor deficiencies are not corrected within the allotted time required under the terms of the POA&M.

(3) Interim CTO. Recommendation upon completion of CTC process as outlined in paragraph 2 of this chapter.

(4) Revocation of a CTO

(a) A recommendation to revoke a CTO for a Navy ODW system may be required when an installation fails to resolve or correct all outstanding significant deficiencies within the approved POA&M timeframe, or a downgrade to conditional CTO status due to failure to correct moderate and minor deficiencies within the approved POA&M timeframe. Should the WQOC, RWQB, or IWQB note a situation in which failure to complete corrective actions appears imminent, the WQOC and RWQB must immediately consult to determine the cause for delays and determine course of action to remedy identified issues. Other situations where revocation must be considered include the following:

1. An acute public health threat exists that prohibits use of the water for any degree of human consumption, and the RWQB, WQOC Chair, and Navy Executive Agent for Drinking Water Ashore concur that continued operation could endanger public health.

2. Determination is made that the system is no longer able to meet applicable standards, with concurrence from the RWQB, WQOC Chair and Navy Executive Agent for Drinking Water Ashore.

3. The system must be placed out of service to conduct significant repairs or improvements.

(b) If a determination is made that a CTO should be revoked, the RWQB, upon consultation with the IWQB, must submit a letter from the RWQB Chair to the WQOC Chair explaining the recommendation for revocation along with any supporting evidence. The letter must include recommended courses of action to remedy identified issue(s) and return the system to operational status, closure, or use of alternative water supplies. Revocation will not become effective until endorsed by the WQOC Chair, in writing.

(c) The WQOC Chair may also recommend revocation of a CTO. In this case, the WQOC Chair must first consult with the Navy Executive Agent for Drinking Water Ashore. Upon consultation, the WQOC Chair must notify the RWQB of the desire to revoke the CTO via a formal letter, with evidence justifying the recommendation. The RWQB must comply with the determination made by the WQOC Chair and provide recommended courses of action to remedy the issue(s).

(d) The IWQB may appeal a determination to revoke a CTO to the RWQB, and the RWQB may appeal a determination to the WQOC Chair. In all cases, the Navy Executive Agent must be consulted. Revocation of a CTO may incur additional consequences. If the revocation of a CTO is deemed to be due to negligence or inability of managerial or operating personnel to carry out assigned duties, corrective actions involving personnel, staffing, and oversight may be required by the WQOC and RWQB.

d. Implementation Timeline. At least six months are needed from the date of the sanitary survey until CTO issuance. Key steps in the implementation timeline include the following:

(1) Sanitary survey report (WQOC) – 90 calendar days after the site visit to receive the final report, including 45 days for preparing a draft report, 15 days for reviewing the draft report, 15 days to respond to comments, and 15 days for finalizing the report.

(2) Development and finalization of sanitary survey POA&M (IWQB and RWQB) – 30 calendar days to update Requirements POA&M on the Navy Drinking Water FlankSpeed SharePoint website after issuance of the sanitary survey final report.

(3) Review of POA&M (WQOC CTO Review Team) – 30 calendar days to review and provide comments to the IWQB and RWQB on the corrective action plans and timelines in the POA&M.

(4) Adjudicating Comments (RWQB and IWQB staff) – 15 calendar days to address the WQOC's comments and submit the updated POA&M to the WQOC CTO Review Team. The WQOC will not issue a CTO recommendation, signed by the WQOC Chair, until updates are made to the corrective action plans and/or timelines per the WQOC's comments.

(5) Recommendation of CTO Level (WQOC Chair and RWQB staff) – 30 calendar days after submission of the final POA&M.

(6) Issuance of CTO (REGCOM/RWQB chair) – 30 calendar days after receipt of the CTO level recommendation.

e. Out-of-Cycle CTO Requests. If an ODW system has resolved all significant deficiencies identified since the last sanitary survey, the RWQB may request an out-of-cycle CTO review for full CTO consideration. The request, with supporting documentation, must be signed by the RWQB Chair and submitted to the WQOC.

(1) A formal review request for full CTO consideration must be submitted on Region letterhead, signed by the RWQB (REGCOM or Region Facilities and Environmental (N4)), to the WQOC. The request, at a minimum, must include a narrative describing the following:

(a) The RWQB has reviewed the POA&M, confirmed all significant deficiencies have been closed, and all supporting documentation for closure has been uploaded to the ODW Data Repository. Include date of review/confirmation.

(b) The RWQB has coordinated with the IWQB and confirmed, to the best of their knowledge, that no other significant deficiencies have arisen since the last sanitary survey. Include date of confirmation.

(c) Confirm and describe the plan and timeline for closing any remaining moderate and minor deficiencies.

(2) The WQOC will establish a WQOC CTO Review Team for each out-of-cycle CTO review request submitted. The WQOC CTO Review Team will be composed of minimum of three WQOC members.

(a) The WQOC CTO Review Team will evaluate the submitted request and all supporting documentation and will submit their recommendation for full CTO to the WQOC Chair, who will then issue the formal recommendation letter.

(b) If a full CTO is not recommended, the WQOC will describe the reasoning for this decision and what requirements still need to be met in the response to the region.

(3) Once a review request is received, Commander, Navy Installations Command (CNIC) will take lead to coordinate and establish the WQOC CTO Review Team no later than seven days following the receipt of the request. The WQOC will then provide the recommendation to the region within 30 calendar days. The RWQB Chair will issue the CTO within 30 calendar days after receipt of the recommendation.

f. Responsibilities

(1) WQOC will:

- (a) Establish and enforce ODW system CTO standards.
- (b) Schedule, track, and conduct triennial sanitary surveys.
- (c) Review inspection reports submitted by installations and Regions.
- (d) Review the ODW Requirements POA&M and document installation progress.
- (e) Recommend appropriate CTO level to REGCOMs.
- (f) Review CTO Program annually and update the program as needed.

(2) RWQB will:

- (a) Coordinate with the WQOC on POA&M and CTO recommendations.
- (b) Ensure corrective action projects have been programmed for timely implementation.
- (c) Review the ODW Requirements POA&M and document installation progress.
- (d) Review ODW system corrective actions and other information related to ODW systems and reports prior to input into ODW Requirements POA&M and Navy ODW Data Repository.
- (e) Verify closure of deficiencies in the ODW Requirements POA&M.
- (f) Ensure input of all compliance data and operational records into the Navy ODW Data Repository by installations.
- (g) Assist REGCOM with issuance of CTOs.
- (h) Assist IWQBs in routine ODW system inspections.

(3) IWQB will:

- (a) Coordinate with RWQB to address sanitary survey deficiencies.
- (b) Document all corrective actions in the ODW Requirements POA&M.

- (c) Conduct routine ODW system inspections and document findings.
- (d) Support the installation Commanding Officer (CO) in determining funding needed for corrective actions.

CHAPTER 10

OPERATOR TRAINING AND CERTIFICATION PROGRAM

1. General

a. References (a), (b), and the country-specific final governing standards (FGS) require that “U.S. Department of Defense (DoD) installations will ensure that personnel are appropriately trained to operate DoD water systems.” However, these documents do not establish a program to ensure operators are trained and certified to have a level of competence and experience with drinking water systems similar to that required by federal and state drinking water operator certification programs in the U.S.

b. Additionally, reference (q) requires overseas drinking water (ODW) treatment and distribution system operators are trained as required by references (a), (b), and the governing FGS, and be provided basic training needed to comply with all applicable federal, state, and local safe drinking water regulations, Executive Orders, and Navy policies. While Navy overseas regulations require Navy drinking water systems have competent Operators in Responsible Charge (ORCs), Assistant Operators in Responsible Charge (AORCs), and operators, these regulations do not have specific provisions for a formal Navy ODW system Operator Training and Certification (OT&C) program similar to that for U.S.-established systems.

c. It is the responsibility of the Water Quality Oversight Council (WQOC) to develop procedures and minimum standards for the training and certification of the ODW operators.

d. Accordingly, this chapter establishes a Navy ODW system OT&C program to ensure operators satisfy the requirements of an equivalent stateside, U.S. Environmental Protection Agency (EPA)-approved program that is modified to include overseas requirements. This program accomplishes the following:

- (1) Provides a system for classifying drinking water treatment and distribution facilities.
- (2) Establishes the Expected Range of Knowledge (ERK) that operators are anticipated to know in the execution of their job.
- (3) Establishes procedures for qualifications to qualify and take the exam, selection of proctors, administration of the exam, and certification of water treatment and distribution facility operators.
- (4) Establishes the professional development requirements for operator recertification and stipulates the minimum number of contact hours each operator must achieve to maintain or improve their capabilities and certification levels.

2. Applicability. The requirements of the Navy’s ODW system OT&C program apply to all

Navy overseas ORCs, AORCs, and operators. These roles may be filled by Navy operators; DoD, Host Nation, or contractor personnel (e.g., base operating support contractors); Region/Installation service providers for leased properties; and lessor employees.

3. Program Execution

a. Overall water quality management and oversight for U.S. Navy drinking water systems at overseas installations is outlined in this manual. It prescribes participation from the WQOC, Navy Operator Certification Authority (NOCA) Board, Region Water Quality Boards (RWQB), and Installation Water Quality Boards (IWQB).

b. These guidelines were developed to enable the NOCA Board, with support from RWQBs and IWQBs, to administer a successful Navy ODW system OT&C program ensuring the protection of the public.

4. Responsibilities

a. Drinking water operators of ODW systems will meet the following:

(1) Directly operate, maintain, repair, manage, and oversee the drinking water treatment plant and distribution system (including cross connection and backflow prevention equipment under the jurisdiction of the utilities management business line) to ensure that water is safe, aesthetically pleasing, and meets operational and mission needs and requirements at all times.

(2) Achieve and maintain certification as appropriate for the system level.

(3) Maintain operator logs and site logbooks per Chapter 5 of this manual.

(4) Document professional development course completion to the IWQB.

(5) Submit certification renewal request to the IWQB 90 days prior to certification expiration.

(6) Notify the ORC or AORC of exceedances as soon as they are discovered.

(7) Review, understand, and comply with all drinking water standard operating procedures (SOP).

b. In addition to the requirements above, ORCs and AORCs will meet the following:

(1) Provide oversight and direction to operators working in the drinking water treatment plant and distribution system.

(2) Physically work on the site; and be familiar with and have the ability to operate the equipment on the site.

(3) Be available (as defined in this manual), either on-call or on-duty, for consultation in case of emergency, malfunction, or breakdown of equipment, or for other questions or concerns with the drinking water treatment plant or distribution system at all times the water systems are in operation.

(4) Maintain operational control of the water systems at all times (see Appendix R).

(5) Notify the IWQB of exceedances in a timely fashion (i.e., within 24 hours) unless an immediate health concern, then as soon as possible.

(6) Develop, implement, and update all drinking water SOPs, as appropriate.

(7) If assigned to multiple systems, travel between systems.

(8) The AORC must be available to fulfill the ORC's responsibilities when the ORC is on leave or unavailable.

c. The installation must have an ORC and at least one AORC available to provide 24/7 coverage and support for their drinking water systems which include after hours, weekends, and holidays when the water treatment plant or distribution systems are unmanned.

d. Additional coverage may be required by the IWQB, in agreement with the RWQB.

e. Water system coverage may be supplemented by a roving security patrol or an automated monitoring system (Supervisory Control and Data Acquisition system, or similar) from a remote location, but this supplemental coverage cannot be the only means of monitoring the water systems.

5. Operator Certification

a. Water treatment and distribution systems classification and certification levels are designated, in increasing order of system complexity and population served, by Levels I, II, and III. Operator certification levels are designated by the same number as the classification level of the highest system the operator is certified to operate. Hence, a Level II certified operator may be the ORC for systems classified as Level II or Level I – but not for systems classified as Level III. An applicant must meet the Navy's overseas operator drinking water requirements for the type and level of system that he or she seeks to be certified to operate. If this person does not meet these requirements, then it is the responsibility of the installation to find a certified operator to meet the requirements of this chapter. The detailed operator certification process is outlined in Appendix N.

b. The Navy operator certification will include the following five basic requirements:

- (1) Education;
- (2) Experience;
- (3) NOCA-approved training for each certification level;
- (4) Exam; and
- (5) Triennial professional development.

c. Operators intending to achieve certification through the reciprocity process should refer to subparagraph 5.h. for process and requirements. The ORC must possess a valid certificate issued by the RWQB equivalent to or exceeding the classification of the system they operate. The AORC's certificate must be no more than one level lower than the classification of the system they operate. When the ORC is not available, an AORC must be available. Upon vacancy of an ORC or AORC position, the IWQB must notify the RWQB via the installation's chain of command within 72 hours. The IWQB, in conjunction with the RWQB, must then notify the NOCA Chair by telephone/email within 15 days. A plan of action and milestones (POA&M) toward filling the vacancy must be sent to the NOCA Board Chair representative within 30 days of the vacancy. Any person (e.g., AORC) stepping in temporarily to fill a vacancy does not automatically become the permanent ORC.

d. Certified Operator Requirements. At a minimum, all U.S. Navy overseas installation drinking water treatment plants and distribution systems must have a Navy-certified ORC and AORC assigned. Each drinking water system may have more than one AORC. The IWQBs, in agreement with the RWQBs, are responsible for assigning the appropriate number of AORCs and operators deemed necessary to effectively and efficiently run the water operations. ORCs and AORCs may be assigned to multiple systems. Each RWQB is responsible for nominating personnel from their respective region to participate in operator training and examination for certification.

(1) Additionally, drinking water treatment plant and distribution system operators who are performing functions as an operator working at the drinking water treatment and distribution system, but are not the ORC and AORC, must at a minimum complete NOCA-approved training for the Navy Treatment Level I (T1) and Navy Distribution Level I (D1) certification levels.

(2) Many Naval Hospitals provide additional chlorine boosting and other treatment for the drinking water within their building. While Naval Hospitals are not classified as separate drinking water treatment systems, the persons calculating chemical amounts, adding chemicals, operating chemical feed equipment, or maintaining water quality based on the chemical additions, must be certified as a T1 operator.

e. Operator Certification Levels. Applicants for the various levels of certification will be of legal working age, per the U.S. Navy and host nation labor agreements, successfully complete and pass the Navy Overseas General Training and Exam, and meet the educational and experience requirements presented in Appendix O.

f. Exam Request and Certification

(1) Whether the exam is taken at the end of a classroom training session, virtual training session, or completion of self-study modules, approval from the NOCA Board is required to qualify and take the Navy drinking water operator certification exams.

(2) RWQBs must request approval through submission of the Exam and Certification Application Form. The NOCA Board will review the applicant's education, experience, and other credentials to determine eligibility/approval to qualify and take a particular exam (Appendix O).

(3) It is the responsibility of the IWQBs to solicit proctors to administer exams using the process described in the Proctor Policy (Forms in Appendix C). The proctor designation form must be signed and submitted to the WQOC Naval Facilities Engineering Systems Command (NAVFAC) Headquarters (HQ) Public Works (PW) representative for approval.

(4) An operator who does not pass the initial certification exam will receive two additional opportunities to retake the test at a later date. There is no waiting period between exams.

(5) Any applicant who fails an exam three times must attend the same training class for the exam which they have failed before sitting for the exam again. This training must be conducted through an in-person, classroom setting, or virtual training class. Self-study of the training materials will not be permitted.

(6) For applicants who wish to retake an exam a second or third time, an email from the RWQB and Public Works Officer (PWO) to the NOCA Board supporting the exam re-take is sufficient. A new Exam and Application package is not required assuming no information in the previous package has changed. An email needs to be sent each time an applicant wishes to retest (i.e., blanket emails to cover numerous retests is not acceptable). The email needs to contain the following information.

(a) Acknowledge that the information in the previous Exam and Certification Application Form submission is still valid.

(b) Acknowledge that the RWQB and PWO are aware that the applicant has previously failed the exam;

(c) Acknowledge that, if the applicant fails a third time, additional training will be required prior to any additional retests.

(7) Applicants who have been approved for the exam have six months from the date of approval by the NOCA Board to take the exam. Failure to take the exam within this time period will result in the need for the Exam and Certification Application Form to be updated and resubmitted to the NOCA Board.

(8) In order to receive an exam completion certificate, the applicant must achieve a minimum exam passing score of 70 percent.

(9) Upon successful completion of the exam, applicants are automatically recommended (by the NOCA Board to the Region) for certification as an operator. While the NOCA Board makes the recommendation to the Region, the Region Chair has the final approval.

(10) Navy training for certification is progressive from Level I to Level II to Level III, reflecting progressive levels of difficulties and comprehension, depending on the system classification.

(11) Sequential exams are not required; that is, an applicant for Level II certification does not need to take and pass the Level I exam. An applicant's approval to take a particular exam is at the discretion of the NOCA Board based on their education and drinking water experience.

g. Operator in Training Program

(1) Only Seabees are eligible for the Operator in Training (OIT) Program.

(2) In addition to Operator Certification Levels I, II, and III, operators who do not meet the education and experience criteria for full certification may apply through the OIT Program to take the Navy T1 or D1 exams in order to obtain training and gain experience while working at the drinking water system.

(3) Applicants must submit the Exam and Certification Application Form and request the Navy T1 or D1 exam.

(4) OITs who pass the T1 or D1 exams will be recommended by NOCA to the Region for Provisional Certification. Once they meet the experience and educational requirements for that level, they will be recommended for Full Certification.

h. Reciprocity

(1) In addition to obtaining certification through Navy training and exams, certification may be obtained through reciprocity of the operator's valid, current U.S. Drinking Water Treatment license, U.S. Drinking Water Distribution license, or Water Professionals International (WPI) (formerly Association of Boards of Certification certification). The determination of reciprocity will be made on a case-by-case basis as determined by the WQOC via the NOCA Board.

(a) WPI Water Treatment Operator and Distribution Operator certifications are accepted as equivalent to the Navy operator certifications, with WPI classes 1, 2, and 3 equivalent to NOCA levels I, II, and III, respectively.

(b) The WPI Exam Equivalency Chart, which indicates which U.S. State certification programs are considered equivalent to WPI standardized exams, has been adopted as well. This equivalency chart includes a state-by-state certification equivalency.

(c) Reciprocity for a certification program outside of the WPI Exam Equivalency Chart will be considered by the NOCA Board on a case-by-case basis. The IWQB, in conjunction with the RWQB, must supply information to the NOCA Board for the designated applicant(s), demonstrating that the requirements under which the other certification was obtained are equivalent to the Navy program requirements.

(2) Requests for reciprocity must be submitted on the Exam and Certification Application Form (Appendix C).

(3) Although, operators holding a valid, current U.S. Drinking Water Treatment and U.S. Drinking Water Distribution license or WPI certification generally will not be subject to training and exam requirements, the NOCA Board reserves the right to enforce the following requirements:

(a) Require the applicant, who appears otherwise qualified by education, experience, and certification elsewhere, to pass the Navy exam; or

(b) In special circumstances, require the applicant to take additional training classes (e.g., reference (a), FGS standards).

i. Transfers

(1) If an operator with a current full certification moves to a different ODW system within their area of responsibility (AOR) and the approving RWQB is the same, then their full certification moves with them to the new ODW system without the need for a new Exam and Certification Application Form. An email notification to the NOCA Board Chair within 15 days of the change is sufficient.

(2) If an operator with current full certification moves to a different ODW system outside of their AOR and the approving RWQB is different than the previous RWQB, then the full certification moves with them to the new ODW system; however, the new RWQB will need to prepare and submit a new Exam and Certification Application Form. Remember that the NOCA Board recommends certification and the RWQB approves certification – the application is needed to start this process.

j. Provisional Certification. Provisional certification (i.e., temporary certification while an operator gains experience) may be recommended by the NOCA Board on a case-by-case basis. Although solely at the discretion of the NOCA Board, provisional certification may be granted in cases where the operator has passed the appropriate exam but does not have enough experience to reach full certification. Persons possessing a Provisional Certification are not eligible to be assigned as the ORC or AORC.

k. Endorsements. Endorsements, as an added training requirement to an operator's certification, are required in situations where the training for that particular installation system level does not include an important aspect of the system as determined by the NOCA Board.

l. Renewal

(1) Certifications will be renewed every three years. Renewal packages (i.e., applications on the Certification Renewal Form, along with proof of the required professional development course completion) will be due to the RWQB and NOCA Board at least 60 days prior to the certificate's expiration date. If the IWQB fails to file the appropriate renewal package via the RWQB for its operators, or if the operator/applicant fails to meet the professional development requirements (refer to subparagraph 5.o.) by the certification expiration date, the certification will expire.

(2) An operator whose certification has expired may seek reinstatement within three years of expiration. Expired certifications may be renewed at the discretion of the NOCA Board and may include additional training or testing requirements.

(3) An operator whose certification has expired beyond the three-year expiration date will be required to reapply and retest.

(4) It is the responsibility of the operator and IWQB, in coordination with the RWQB, to monitor the expiration status of their operator's certifications and to file the appropriate renewal package by the deadlines listed above. No mail or email renewal notices will be sent from the NOCA Board.

(5) Renewal applicants will be subject to the education, experience, and training and exam requirements in effect at the time of their renewal. No renewal applicants will be grandfathered (refer to subparagraph 5.n.) under previous requirements. Applicants, in

coordination with their IWQB should carefully monitor these requirements to ensure that applicants meet these requirements prior to submission of the renewal package.

m. Suspension and Revocation

(1) If an operator fails to maintain the requirements of their position as detailed herein, his or her certificate may be suspended or revoked. Because operator certifications are approved by the RWQB (and not the NOCA Board), it is the responsibility of the RWQB to initiate and implement any suspension or revocation of these certifications.

(2) If deemed appropriate, the RWQB will work through the chain of command to suspend or revoke the certification of an operator to address any of the following issues:

(a) The operator has practiced fraud or deception.

(b) The operator failed to use reasonable care, judgment, knowledge, or ability in the performance of his duties.

(c) The operator is incompetent or unable to properly perform the duties of an operator.

(d) The operator has failed to comply with the requirements for certification or renewal of certification.

(3) RWQB must notify the NOCA Board Chair.

(4) Any operator whose certification has been revoked by the RWQB must apply, through the IWQB, to the RWQB for consideration and recommendation by the NOCA Board for reinstatement of the revoked certification.

n. Grandfathering. No applicant or operator will be grandfathered under previous provisions unless explicitly granted a variance by the NOCA Board. Exam requests, certification requests, certification renewals, transfers, etc. will be evaluated by the NOCA Board under the current provisions in this manual and in effect at the time of application.

o. Professional Development

(1) All certified operators will complete 36 contact hours of professional development courses every three years beginning at the time of certification or renewal. Only water-related courses are accepted for renewal of drinking water licenses. No more than 25 percent of the contact hours will be operator safety. One Continuing Education Unit equals ten contact hours. The requirement must be met before renewing the certification.

(2) If a certified operator exceeds the contact hour requirement in any triennial renewal period, a maximum of 12 contact hours may be carried forward into the subsequent triennial period.

(3) Operators renewing dual certifications (i.e., treatment and distribution) at the same time will only require 36 hours of contact hours. All contact hours to be counted towards renewal must have been taken within the active period of the certifications.

(4) All professional development courses must be approved by the NOCA Board.

(a) The NOCA Board maintains a list of pre-approved professional development courses (refer to Professional Development Approved Courses Form (Appendix C). This list is updated periodically as the NOCA Board approves additional courses.

(b) For professional development courses not on the NOCA Board's pre-approved list, operators, through the IWQB and in coordination with the RWQB, must submit a Professional Development Training Course Approval Application (Appendix C to the NOCA Board prior to taking any course (including site-specific or installation-provided training) to ensure NOCA Board approval of the course. Professional Development Course Approval Applications for a non-English host nation course must include a brief summary of the course in English.

(c) The NOCA Board reserves the right to approve and add professional development courses they deem applicable without the need for region submittals.

(5) There is a time limit for requesting approval. Understanding that sometimes courses come up at the last minute, the NOCA Board will only approve professional development courses up to 90 days past date of course completion. It is recommended that the professional development course material be submitted to the NOCA Board for review and approval using the Application for Approval of Training for Professional Development prior to taking the course. Taking the course first and asking for approval afterwards runs the risk of a course not being approved. Up front approval ensures the course will satisfy contact hour requirements.

(6) Drinking water operators will obtain a certificate or other proof of completion from the organization providing the professional development training, which includes the name of the provider, the provider's address, and a point of contact with telephone number and e-mail address. The proof of completion will further identify the name of the participant, the number of contact hours completed, the course name, the instructor's name, and the date of the training received.

(7) Training records, including operator certificates and professional development contact hours and course completion, must be maintained by the installation. It is the

responsibility of the drinking water operator and IWQB to maintain accurate training records. The NOCA Board will not maintain copies of operator training records.

(8) On-the-job training will not be acceptable for contact hours. On-the-job training is different from site-specific or installation-provided training developed and administered by a subject matter expert (SME).

6. System Levels of Certification

a. Classification of Treated Water

(1) It is the responsibility of the NOCA Board, on behalf of the WQOC, to establish and verify water treatment and distribution classification of Navy overseas installation drinking water systems to ensure consistency across the enterprise-based information provided by the RWQB.

(2) If there are any changes or modifications to a water system, a new classification score sheet may be submitted, via the RWQB, to the NOCA Board for review.

(3) The WQOC reserves the right to recommend a higher/lower classification than what is calculated by the classification score sheet based on the complexity of the system, where the appropriate training is located within the training slides and exams, and other factors as determined by the WQOC. The WQOC also reserves the right to require the RWQB to re-evaluate and resubmit the classification score sheet.

b. Water Treatment System Classification

(1) The classification of the water treatment system will dictate the level of certification required for operation. Designation of water treatment system classification will follow the point system provided in the Water Treatment System Classification Point System (Appendix C). Classification depends on the total number of points assigned to each applicable parameter listed.

(2) In addition to the “ground water” and “surface water” that require treatment, the country specific FGS may have a “Purchased Water” category which refers to any drinking water acquired from a water system authorized by a competent host nation water authority to produce and distribute drinking water; in the U.S., this category is known as a consecutive system. It should also be noted that under the host nation FGS, bottled water is not considered “Purchased Water;” however, bottled water must be from DoD-approved sources.

(3) For purchased water (and thus consecutive system water) that has to be treated again, the treatment is called “supplemental” treatment. The operator of supplemental treatment processes must have a treatment certificate. If the treatment is simple (e.g., chlorination, corrosion control), a Level I treatment certificate may be appropriate. If the treatment is more complex, a Level II or III treatment certificate would be needed.

(4) Naval Hospitals which provide additional treatment for the drinking water within their building are not classified as separate water treatment systems.

c. Water Distribution System Classification. The classification level of the water distribution system will dictate the certification level required for operation. Designation of water distribution system classification will follow the point system provided in the Water Distribution System Classification Point System (Forms in Appendix C). Classification depends on the total number of points assigned to each applicable parameter listed.

7. Expected Range of Knowledge

a. Drinking water treatment and distribution system operators have the primary responsibility for day-to-day operations to protect the public health by delivering drinking water that is fit for human consumption (FFHC) to the water customers. To assist the individual in preparation for the certification process, the ERK has been developed as an example of knowledge required. The ERKs are based on industry-accepted publications and standards, or a combination of skill sets that a particular level of employee would be expected to achieve, and are taken from several available training manuals that are widely accepted and used in certification programs throughout the U.S.

b. Training slides for each water system type (i.e., treatment, distribution) and level (i.e., Level I, Level II, Level III) based on this ERK have been developed by the Navy to assist operators in preparing for the exam.

c. Additional training materials can be found through various industry providers. Additionally, the WPI website has an extensive list of “Need-to-Know” criteria, which can be used as a guideline for drinking water operators. WPI covers most requirements, except for reference (b) and FGS requirements that are unique to overseas locations.

d. The NOCA Board will perform a biennial review of the training slides and exams to ensure the information is accurate and up to date.

e. The current Navy training slides and exams have been developed in English, Japanese, Korean, Italian, and Spanish. Future revisions to these slides and exams will be developed in English and it is up to the discretion and expense of the RWQB to translate any revisions to these materials into the host nation language as necessary.

CHAPTER 11 TRAINING

1. General. Training requirements ensure key Navy Overseas Drinking Water (ODW) Program personnel are qualified to perform their duties. The Navy ODW training program addresses general training and awareness, site specific training developed by the Region Water Quality Board (RWQB) and operator training that supports operator certification.
2. Installation Commanding Officers, Executive Officers and Public Works Officers. Installation Commanding Officers (COs), Executive Officers (XOs) and Public Works Officers (PWOs) are trained per the requirements of their chain of command. This typically includes a Senior Shore Leadership Course and equivalent PWO course that includes a drinking water section. The records of these trainings are maintained within the military record and are not required by this manual.
3. Drinking Water Program Managers. Drinking Water Program Managers and Installation and Region Environmental Water Program Managers must complete the Air Force Institute of Technology Drinking Water Quality Management Course (WENZ 542) on a one-time basis within six months of filling a water program manager position. In addition, it is recommended that installation or region water program stakeholders participate in the Navy and Marine Corps Force Health Protection Command (NMCFHPC) Drinking Water Training Course, which is offered in-person at various Navy installations at least four times each fiscal year. NMCFHPC circulates the training schedule with the applicable regions on an annual basis to coordinate course participation.
4. Operators. Operators in Responsible Charge (ORCs), Assistant Operators in Responsible Charge (AORCs), and operators will comply with training and certification requirements established in this manual.
5. Region and Preventive Medicine Authority. Region and Installation Preventative Medicine Authorities (PMAs) will comply with training requirements established in reference (g).
6. Records. Training records for Drinking Water Program Managers, Installation and Region Environmental Water Program Managers, Operators, and Installation and Region PMAs will be maintained by the RWQBs. Navy ODW Program training records will be maintained for installation COs/XOs by Commander, Navy Installations Command (CNIC) Headquarters (HQ). Training records for PWOs will be recorded and maintained by Region Engineers for Regions with overseas installations. Training records for ORCs and AORCs will be maintained per Chapter 12 of this manual.

CHAPTER 12 RECORDS MANAGEMENT

1. General. Records created as a result of this manual, regardless of media and format, will be managed per reference (r) and uploaded, unless otherwise noted in the applicable section, to the Navy Overseas Drinking Water (ODW) Data Repository, located at <https://eprweb.cnic.navy.mil/eprwebnet/web/Logon.aspx> or any new database platform as directed by Commander, Navy Installations Command (CNIC).

2. Requirements. Navy ODW Data Repository users will comply with protocols found in reference (s). Navy ODW Data Repository users with Water Quality Oversight Council (WQOC) access that manage data at the WQOC level will comply with protocols found in reference (t). Additional quick reference sheets to assist users are also available on the Navy ODW Data Repository.

3. Records

a. ODW Data Repository

(1) Region Water Quality Boards (RWQB) will upload final Certificate to Operate (CTO) documentation to the ODW Data Repository for each applicable drinking water system.

(2) The Sanitary Survey Team Lead will upload the final sanitary survey report to the ODW Data Repository for each of their sanitary surveys.

(3) The WQOC Laboratory Authority will upload laboratory approval memoranda and on-site laboratory assessments to the ODW Data Repository.

(4) Installation Water Quality Boards (IWQB) will upload sanitary survey request for information (RFI) data annually to the ODW Data Repository.

(5) IWQBs will upload checklists, corrective action reports, final reports, operator certificates, Proficiency Testing study results, Consumer Confidence Reports (CCRs) and related documents to the ODW Data Repository.

b. Navy Drinking Water FlankSpeed SharePoint

(1) At least quarterly, IWQBs and RWQBs will update and validate the Requirements Plan of Action and Milestones (POA&M) on the Navy Drinking Water FlankSpeed SharePoint website at <https://flankspeed.sharepoint-mil.us/sites/CNICHQ/ODW/SitePages/ProjectHome.aspx>.

(2) All Requirements POA&M updates and management will be conducted on the Navy Drinking Water FlankSpeed SharePoint website.

**APPENDIX A
ACRONYMS**

A/E	Architect/Engineer
ANSI	American National Standards Institute
AOR	Area of Responsibility
AORC	Assistant Operator in Responsible Charge
AUTEC	Atlantic Undersea Test and Evaluation Center
BOS	Base Operating Support
BOSC	Base Operating Support Contract
BUMED	Navy Bureau of Medicine and Surgery
CAP	Corrective Action Plan
CCR	Consumer Confidence Report
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulation
CNIC	Commander, Navy Installations Command
CNIC N4	CNIC Director, Facilities and Environmental Programs
CNIC N45	CNIC Environmental Programs
CNO	Chief of Naval Operations
CO	Commanding Officer
COR	Contracting Officer Representative
cp	Cup
CRM	Certified Reference Materials
CTC	Certificate to Construct
CTO	Certificate to Operate
D1	Distribution Level I
DBP	Disinfection Byproducts
DCPH	Defense Centers for Public Health
DoD	Department of Defense
DOE	Department of Energy
dp	Drop
DPD	Diethyl-P-Phenylenediamine
EA	Executive Agent
EMR	Environmental Management Review
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPR	Navy Environmental Portal
ERK	Expected Range of Knowledge
ERP	Emergency Response Plan

EV	Environmental
EXWC	NAVFAC Engineering and Expeditionary Warfare Center
FAC	Free Available Chlorine
FBR	Fractured Bedrock
FEC	Facilities Engineering Command
FFHC	Fit for Human Consumption
FGS	Final Governing Standards
gal	Gallon
GED	General Education Development
GWUDI	Ground Water Under Direct Influence
HAA5	Haloacetic Acids
HQ	Headquarters
ICTO	Interim Certificate to Operate
IDSE	Initial Distribution System Evaluation
IEC	International Electrotechnical Commission
ILAC	International Laboratory Accreditation Cooperation
ISO	International Organization for Standardization
IWQB	Installation Water Quality Board
JWWA	Japan Water Works Association
LANT	Atlantic
LOQ	Limit of Quantitation
LQAO	Laboratory Quality and Accreditation Office
LT2	Long-Term 2
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
mL	Milliliter
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Systems Command
NAVSEA	Naval Sea Systems Command
NMCFPHC	Navy and Marine Corps Force Health Protection Command
NOCA	Navy Operator Certification Authority
NPDWR	National Primary Drinking Water Regulations
NSF	National Sanitation Foundation
NSN	National Stock Number
ODW	Overseas Drinking Water
OEBGD	Overseas Environmental Baseline Guidance Document
OIC	Officer in Charge
OIT	Operator in Training

OPNAV	Office of the Chief of Naval Operations
OQE	Objective Quality Evidence
ORC	Operator in Responsible Charge
OT&C	Operator Training and Certification
PA	Preliminary Assessment
PAC	Pacific
PAO	Public Affairs Officer
PDC	Planning, Design, and Construction
PER	Preliminary Engineering Report
PMA	Preventative Medicine Authority
POA&M	Plan of Action and Milestones
POC	Point of Contact
PT	Proficiency Testing
PW	Public Works
PWD	Public Works Department
PWO	Public Works Officer
PWS	Public Water System
QA	Quality Assurance
QC	Quality Control
QMS	Quality Management System
qt	Quarts
REGCOM	Regional Commander
RFI	Request for Information
RRA	Risk and Resilience Assessment
RWQB	Region Water Quality Board
SDS	Safety Data Sheet
SDWA	Safe Drinking Water Act
SECNAV	Secretary of the Navy
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SOW	Scope of Work
SWT	Surface Water Treatment
SWTR	Surface Water Treatment Rule
T1	Treatment Level I
TAB	Technical Advisory Board
tbls	Tablespoon
TC	Total Coliform
tsp	Teaspoon
TT	Treatment Technique

TTHM	Total Trihalomethanes
TTX	Tabletop Exercise
UL	Underwriter's Laboratory
UV	Ultraviolet
WPI	Water Professionals International
WQOC	Water Quality Oversight Council
XO	Executive Officer

**APPENDIX B
REFERENCES**

- a. OPNAVINST 5090.1E
- b. Department of Defense Manual 4715.05 Volume 3, Overseas Environmental Baseline Guidance Document: Water, 29 Jun 2020
- c. NAVMED P-5010-5 (Rev. 7-2019), Manual of Naval Preventive Medicine, Chapter 5 Water Quality for Shore Installations, of 1 Jul 2019
- d. National Primary Drinking Water Regulations (40 CFR 141)
- e. Public Health Services Act of 1944
- f. Safe Drinking Water Act of 1974 (amended 1996)
- g. BUMEDINST 6240.10D
- h. NSF International Standard / American National Standard / National Standard of Canada for Drinking Water Additives (NSF/ANSI/CAN) Standard 60 “Drinking Water Treatment Chemicals – Health Effects,” of November 2024
- i. European Norm CEN/TR 14269:2001, Chemicals Used for Treatment of Water Intended for Human Consumption – Guidelines for the Purchase of Products
- j. Japan Water Works Association (JWWA) K120 2008-2: Sodium Hypochlorite for Water
- k. NSF International Standard / American National Standard / National Standard of Canada (NSF/ANSI/CAN) Standard 61 “Drinking Water System Components – Health Effects,” of 2023
- l. Reduction of Lead in Drinking Water Act of 2011
- m. DoD Policy and Guidelines for Acquisitions Involving Environmental Sampling or Testing, of November 2007
- n. CNICINST 5214.1B
- o. Revised Public Notification Handbook EPA 816-R-23-002, of March 2023
- p. USEPA 816-R-17-001, How to Conduct a Sanitary Survey of Drinking Water Systems, August 2019

- q. DASN(E) memo of 31 Dec 15, Drinking Water Requirement at Installations Outside the United States
- r. SECNAV M-5210.1
- s. Navy Overseas Drinking Water Database Users Guide of March 2015, NAVFAC Engineering and Expeditionary Warfare Center (EXWC), or latest version
- t. Navy Overseas Drinking Water Database WQOC Users Guide of March 2015, NAVFAC EXWC, or latest version
- u. EM 385-1-1, Safety and Health Requirements, of 15 March 2014
- v. UG-2029-ENV, Cross-Connection Control and Backflow Prevention Program Implementation at Navy Shore Facilities, of May 1998
- w. USEPA 815-R-05-004 of January 2005, EPA Manual for the Certification of Laboratories Analyzing Drinking Water

APPENDIX C
LIST OF FORMS

1. The following forms can be found on the Navy Drinking Water FlankSpeed website at: <https://flankspeed.sharepoint-mil.us/sites/CNICHQ/ODW/SitePages/ProjectHome.aspx>.
 - a. Revised Total Coliform Rule Level I Assessment Form
 - b. Revised Total Coliform Rule Level II Assessment Form
 - c. Ground Water Under the Direct Influence Preliminary Assessment Worksheet
 - d. Initial Distribution System Evaluation (IDSE) 40/30 Certification
 - e. IDSE Standard Monitoring Report
 - f. IDSE Very Small System Waiver
 - g. Hauled Drinking Water Log
 - h. Laboratory Personnel and Equipment Information
 - i. Water Quality Oversight Council (WQOC) Laboratory Authority Verification Request Protocol Form
 - j. Technical Advisory Board (TAB) Submittal Request
 - k. Water System Description Form
 - l. Certificate to Operate (CTO) Review Comment Template
 - m. Navy Overseas Drinking Water (ODW) System Self-Assessment Checklist
 - n. Exam and Certification Application
 - o. Certification Renewal Application
 - p. Proctor Policy
 - q. Professional Development Approved Courses and Approval Application
 - r. Water Treatment System Classification Point System

- s. Water Distribution System Classification Point System
- t. ODW Operator Definition and Guidance

APPENDIX D
GROUND WATER UNDER DIRECT INFLUENCE OF SURFACE WATER
PRELIMINARY ASSESSMENT

SECTION 1: BACKGROUND, PURPOSE AND POLICY

1. Purpose. To protect public health by assessing and classifying ground water sources that have a potential to be directly influenced by surface water to determine applicability of surface water treatment requirements.

2. Background. In order to set criteria for meeting or exceeding U.S. drinking water quality standards, the Navy's Executive Agent for Drinking Water Ashore, Commander, Navy Installations Command (CNIC), references the National Primary Drinking Water Regulations (reference (d)) as the standard for overseas installations in Chapter 2 of this manual. One of the incorporated requirements in reference (d) is the Surface Water Treatment Rule (SWTR). The overall goal of the SWTR is to protect consumers from pathogens in surface water. For most affected public water systems, protection entails the use of a multiple-barrier approach including source water protection, filtration and disinfection when surface water is used as a public drinking water source. The requirements of the SWTR also apply to ground water under direct influence (GWUDI) of surface water. The U.S. Environmental Protection Agency (EPA) delegated GWUDI determination criteria to the states in the GWUDI definition in 40 Code of Federal Regulations (CFR) 141.2; therefore, this manual establishes GWUDI determination criteria for the Navy Overseas Drinking Water (ODW) Program.

3. Policy
 - a. Applicability. The GWUDI screening assessment applies to all ground water in the Navy ODW Program that has the potential to be directly influenced by surface water. The intent is to apply the SWTR to any ground water sources that are at risk of contamination from *Giardia lamblia*, *Cryptosporidium* or other pathogenic organisms associated with surface water.

 - b. Program Management and Oversight. The WQOC is responsible for developing and implementing the GWUDI determination process, issuing related policies, issuing guidance and making final GWUDI determinations. Region Water Quality Boards (RWQB) coordinate the preliminary assessment process with installations, review the installations' GWUDI screening assessments and supporting documentation, and submit GWUDI status recommendations to the Water Quality Oversight Council (WQOC).

 - c. GWUDI Determination Process. The GWUDI determination process begins with a Preliminary Assessment (PA) conducted by installations and submitted to RWQBs, who then submit the PA worksheet (form in Appendix C) and documentation to the WQOC for approval. Depending on the results of the PA, the RWQB may determine the source not to be under the direct influence of surface water or may require one or more of the following options:

(1) The source may be studied further.

(a) The Scope of Work for all GWUDI studies will be submitted to, and approved by the WQOC before the contract is awarded.

(b) The final report and findings for all GWUDI studies will be submitted to and receive concurrence by the WQOC.

(2) Additional source information may be requested

(3) Repair of source construction deficiencies

d. If an installation completed a GWUDI study prior to the issuance of this manual, the installation will select this option on the PA worksheet and attach the study to the PA worksheet for submittal. The existing GWUDI study is subject to WQOC review.

e. The WQOC has the discretion to require installations to comply with any or all of these options and to require further assessment after any construction deficiencies of a source are repaired. Applicants must submit the analytical results from any follow-up assessments to the RWQB for review and approval. The RWQB or WQOC may conduct an independent investigation in addition to the PA.

SECTION 2: IMPLEMENTATION AND SUPPORTING PROCESSES

1. Preliminary Assessment Overview

- a. The GWUDI determination process begins with a PA. The installation will complete a PA worksheet (form in Appendix C) for each existing or proposed ground water source for an ODW system and submit to their RWQB for approval. The RWQB will submit the information to the WQOC. If an installation completed a GWUDI study prior to the issuance of this manual, the installation will indicate this on the PA worksheet and attach the GWUDI study to the PA worksheet submittal for evaluation by the WQOC.
- b. The installation evaluates water sources using the PA worksheet point system to calculate the results of the PA. Sources that score less than 40 points may be classified as ground water unless other information becomes available that suggests further review is necessary. Sources that score 40 points or higher will require further analysis, source rehabilitation or additional source information to complete the PA, at the discretion of the RWQB or WQOC.
- c. Results of the PA are based on historical microbiological and pathogenic sampling, source construction details and proximity of the ground water source to surface water. The installation must submit supporting documentation to the RWQB in addition to the PA worksheet, and the RWQB or WQOC may ask the installation to provide well log records and other information as necessary to assist in reviewing the PA worksheet.

2. Preliminary Assessment Worksheet Directions

a. Type of Structure

(1) Acceptable documentation: Design or as-built drawings, well logs, or photographically documented site inspection.

(2) Select Spring, Horizontal Well or Well, and continue with the PA.

b. Historical Installation Microbiological and Pathogenic Contamination. The metric for microbiological contamination is based on the acute maximum contaminant level (MCL) violations and raw water triggered source samples on record for the three years preceding the date of the PA worksheet. Acute violations typically are related to boil or bottled water orders issued because of fecal or *E. coli* presence. For the purpose of this PA, any positive fecal coliform or *E. coli* sampling results in treated or source water over the past three years will be counted as an acute violation and will trigger a GWUDI study. Additionally, consult with installation and region medical personnel to confirm any verified or suspected outbreaks of illnesses associated with *Giardia lamblia*, *Cryptosporidium* or other pathogenic organisms associated with surface water, with the current system configuration.

(1) Acceptable documentation: Compliance monitoring data and reports or public health records. Include review of water quality physicochemical and bacteriological profiles of source (wells and springs) and nearest surface water including unregulated parameters such as water temperature, turbidities, pH and conductivities.

(2) Enter the number of fecal coliform or *E. coli* positive in treated water over the past three years and continue with the PA.

(3) Enter the number of fecal coliform or *E. coli* positive in source water over the past three years and continue with the PA.

(4) If any verified or suspected historical pathogenic outbreaks with current system configuration, then select “Yes” and continue with the PA.

(5) If no historical pathogenic outbreaks under current system configuration, then select “No” and continue with the PA.

c. Geological Features. Use available information to determine the geological features of source water location. The options for geological features include fractured bedrock (FBR) aquifer or source water (excluding wells with significant overburden) in a karst region, or horizontal wells (infiltration galleries) in a gravel and sand layer aquifer with no clay overburden.

(1) Acceptable Documentation: Documentation that is auditable per Navy Environmental Management System (EMS) requirements outlined in reference (b).

(2) Select Karst, FBR or Sand and Gravel from the options and continue with the PA.

d. Hydrological Features. Use available information to determine nearest surface water. Surface water is defined as any water that is open to the atmosphere and may be subject to surface runoff. This includes perennial streams, intermittent streams, rivers, ponds, lakes, ditches and some wetlands and natural or artificial impoundments that receive water from surface runoff. In cases of doubt, the deciding factor will be whether the RWQB or WQOC determines that the surface source may contribute surface organisms to the ground water source.

(1) Acceptable documentation: Geographic information system analysis or site measurements. Include review of any available boring logs and available drawdown and static readings of any wells in the zone of influence.

(2) Select the distance between the well and surface water from the options and continue with the PA.

e. Well Seal. Poorly constructed well (uncased, or annular space not sealed to depth of at least 18 feet (5.5 meters) below surface), or casing construction unknown. Only complete this section if source is a well.

(1) Acceptable documentation: Design or as-built drawings, well logs or photographically documented site inspection.

(2) Select “Yes or Unknown” from the options if the well seal meets the description above or if the information is unknown, and continue with the PA.

(3) Select “No” from the options if well seal does not meet the description above and continue with the PA.

f. Well Intake Construction. The depth below land surface to top of perforated interval or screen for wells tapping unconfined or semi-confined aquifers. Only complete this section if source is a well.

(1) Acceptable documentation: Design or as-built drawings, well logs or photographically documented site inspection.

(2) Select depth from the options or “Unknown,” and continue with the PA.

g. Static Water Level. The depth to static water below land surface for wells tapping unconfined or semi-confined aquifers. Only complete this section if source is a well.

(1) Acceptable documentation: Design or as-built drawings, well logs or photographically documented site inspection.

(2) Select depth from the options or “Unknown,” and continue with the PA.

h. Well Cap Construction. Poor sanitary seal or vent, or seal without acceptable materials that allows contamination to enter the well. Only complete this section if source is a well.

(1) Acceptable documentation: Photographically documented site inspection.

(2) Select “Yes,” and continue with the PA.

(3) Select “No” if the well cap does not meet the description above and continue with the PA.

i. Spring Box Collection. Includes collection vaults collecting water from infiltration galleries.

(1) Acceptable documentation: Documentation that is auditable per Navy EMS requirements outlined in reference (b).

(2) Deep-rooted vegetation (e.g. trees, shrubs) is around spring box, providing conduit for surface water into spring water.

(a) Select “Yes or Unknown” if deep-rooted vegetation is around the spring box or if the information is not known, and continue with the PA.

(b) Select “No” if deep-rooted vegetation is not around the spring box and continue with the PA.

(3) Spring box is not watertight, with overlapping lid or cover.

(a) Select “Yes or Unknown” if the spring box is not watertight or if the information is not known, and continue with the PA.

(b) Select “No” if the spring box is watertight and continue with the PA.

(4) Overflows or drains open to atmosphere or allow entrance of animals (unscreened).

(a) Select “Yes or Unknown” if overflows or drains open to atmosphere or allow entrance of animals, or if the information is not known, and continue with the PA.

(b) Select “No” if overflows or drains do not open to atmosphere and do not allow for entrance of animals, and continue with the PA.

(5) Marshy (standing water) around spring collection area.

(a) Select “Yes or Unknown” if there is standing water around the spring collection area or if the information is not known, and continue with the PA.

(b) Select “No” if there is not standing water around the spring collection area.

j. Known History of Flooding. Is the well or spring located in an area with a history of flooding?

(1) Acceptable documentation: 100 Year floodplain maps.

(2) Select “Yes or Unknown” if well is located in an area with a history of flooding or if the information is not known, and continue with the PA.

(3) Select “Yes or Unknown” if there is overflow or the well drains open to atmosphere or if the information is not known, and continue with the PA.

(4) Select “No” if well is in an area that does not have a history of flooding and continue with the PA.

3. Preliminary Assessment Score

a. Source scored less than 40 points: The source may be classified as ground water not under the direct influence of surface water.

b. Source scored between 40 points and 80 points: the source will undergo a GWUDI Study to determine applicability of surface water treatment requirements or be classified as GWUDI.

c. Source scored more than 80 points: The source will be classified as GWUDI.

4. Certifier and Preparer Information and Comments. This section of the PA worksheet may be used to explain any mitigating circumstances (e.g., best management practice implementation) that the RWQB or WQOC may take into consideration when assessing if the source requires further analysis.

APPENDIX E
SURFACE WATER TREATMENT COMPLIANCE ASSESSMENT TOOL

1. The Surface Water Treatment Rule (SWTR) and its enhancements established a multiple barrier approach to microbial control that included:
 - a. Source water monitoring and management to reduce the opportunity to introduce the target organisms into the water.
 - b. Providing the appropriate treatment to remove and/or inactivate the target organisms.
 - c. Maintaining microbial control in the distribution system.
2. As part of its effort to ensure the appropriate treatment was being provided to the drinking water that was being provided at overseas Navy installations, the Navy adopted elements of the Safe Drinking Water Act including the SWTR. Some of the Navy's overseas installations have either achieved full compliance with the surface water treatment (SWT) requirements or have a clear path to achieve full compliance as approved by the Water Quality Oversight Council (WQOC). For those systems, no change is required in their current compliance efforts (refer to Path 1 in Figure E-1), however, a WQOC-approved compliance plan is still required for all systems that currently are not in full compliance and do not have a current approved plan.
3. Alternative approaches to SWT compliance are illustrated in Figure E-1 for those systems that have not achieved full compliance with SWT requirements and:
 - a. Have access to host nation water treatment plants to assess conformance with applicable U.S. Navy standards (Path 2) or
 - b. Have full control of watersheds, source water, and on-site treatment plants (Path 3) or
 - c. Have full control of source water and on-site treatment plants (Path 4).
4. 40 Code of Federal Regulations (CFR) 141.715 (reference (d)) provides a list of microbial control options. For Navy Overseas Drinking Water (ODW) systems that have been unable to achieve compliance, the microbial control options include but are not limited to ultraviolet (UV), ozone, chlorine dioxide, conventional filtration, direct filtration, membrane filtration, slow sand filtration, diatomaceous filtration and bag or cartridge filtration.
5. Systems choosing to utilize the alternative approaches to SWTR compliance included in Figure E-1 will submit their approach in SWTR compliance plans for WQOC approval. Upon WQOC approval, the system will submit additional detailed technical information to the Technical Advisory Board (TAB) as needed to obtain a Certificate to Construct (CTC) and Certificate to Operate (CTO). Refer to Chapter 9.

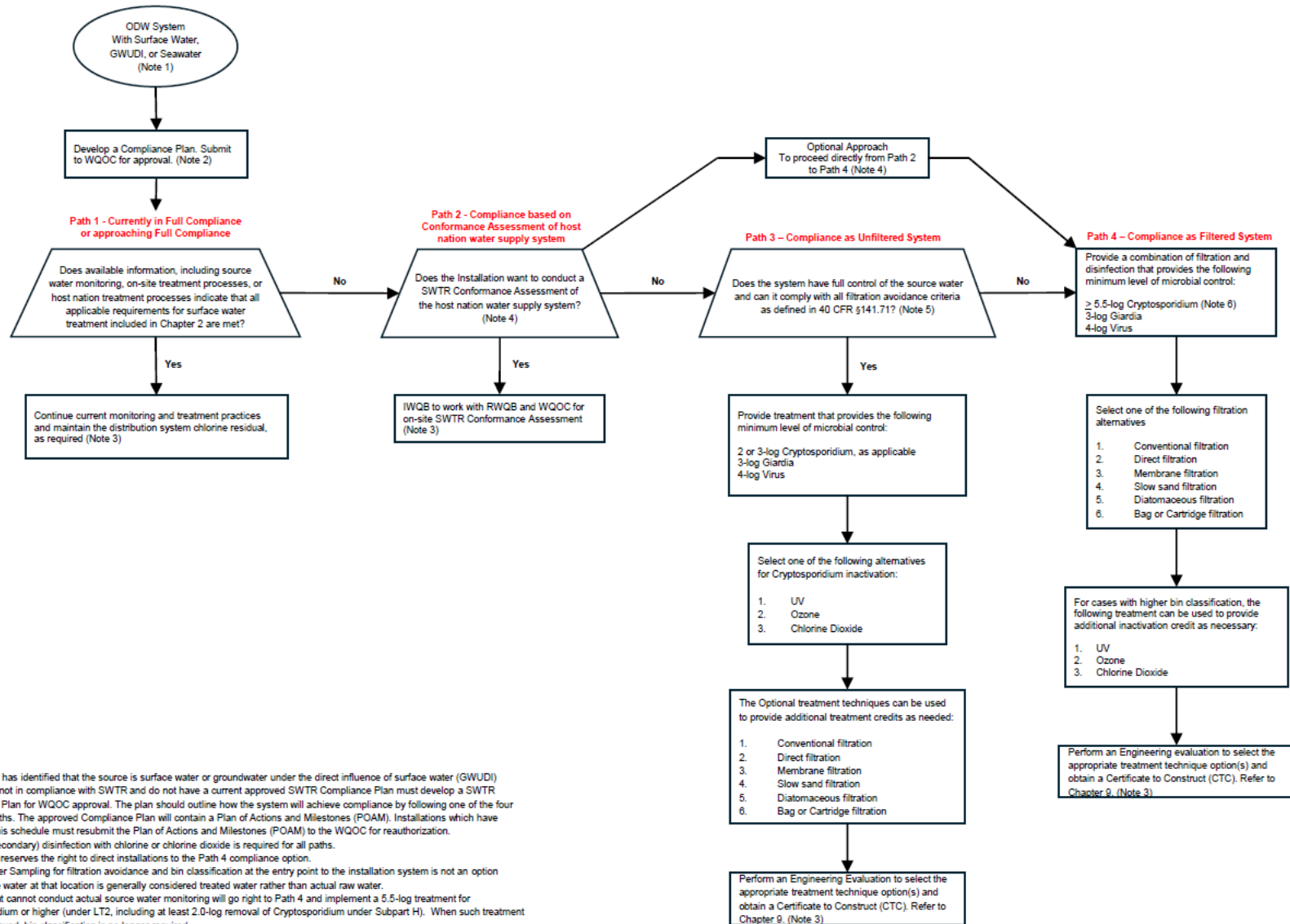


Figure E-1. Surface Water Treatment Compliance Assessment

APPENDIX F
PROCEDURE FOR SELECTION OF TREATMENT CHEMICALS

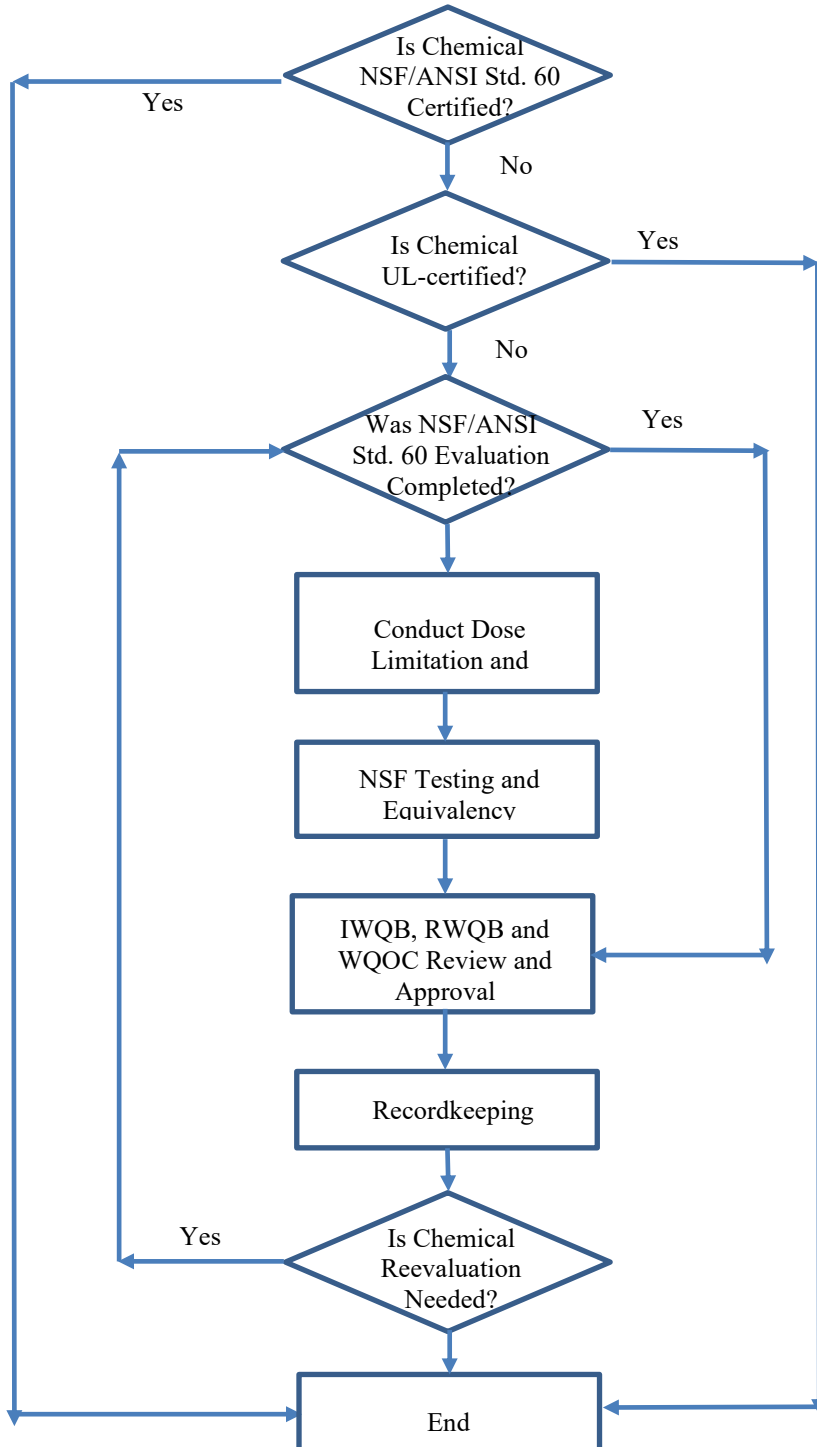


Figure F-1. Procedure for Treatment Chemical Selection

APPENDIX G HAULED WATER HEALTH AND SAFETY REQUIREMENTS

All drinking water treatment plant personnel, including the Operator in Responsible Charge (ORC) and Assistant Operator in Responsible Charge (AORC), will follow these health and safety requirements:

1. Follow all Navy safety regulations including health and safety requirements outline in reference (u).
2. Be familiar with applicable Safety Data Sheet (SDS).
3. Locate the proper safety equipment and verify it is operational (e.g., emergency eyewash, safety shower).
4. Identify and wear all appropriate personal protective equipment required by the SDS.
5. Use proper handling procedures for soaps, chlorine solutions and other potentially hazardous materials.
6. Use proper sanitation procedures.
 - a. Thoroughly wash hands with soap before and after fit for human consumption (FFHC) container water refilling.
 - b. Use disposable gloves during servicing of FFHC water dispensers (refer to Appendix I, Section 4.a. Five Gallon Water Dispensers).
 - c. Make skin sanitizer available to the workers to use if desired, but this method is not acceptable as a primary form of handwashing.

APPENDIX H

HAULED WATER EQUIPMENT, SUPPLIES, MATERIALS AND TOOLS REQUIRED

1. Standard Equipment and Systems

a. Several storage and distribution items/systems that are in the inventory provide flexibility to planners in providing water to deployed personnel. They need to be dedicated for fit for human consumption (FFHC) water and kept clean and serviceable to protect the water they carry or store from contamination. If containers have been previously used for non-FFHC water transport, they will need to be reviewed and approved by the installation water quality board (IWQB).

b. Standard equipment includes but is not limited to: five-gallon water dispenser container, five-gallon water can, bulk 200 to 400-gallon water trailer (“water buffalos”), bulk 800-gallon water pod system, bulk 2,000 to 5,000-gallon tank trucks, and sampling and testing equipment.

c. Containers, which will:

(1) Be contaminant-free, watertight, not previously used for non-food products and made of material that can be cleaned and disinfected. The container must also be capable of being maintained to prevent water contamination (e.g., all areas of the container are accessible for cleaning).

(2) Be dedicated container labeled “DRINKING WATER” or “POTABLE WATER.”

(3) For all bulk tanks, include drains and vents which will allow for complete emptying of the tank for cleaning or repairs.

(4) For water contact material surfaces, be certified to National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) Standard 61, or verified to be constructed from food grade material, or be approved by the Region Water Quality Board (RWQB), in consultation with the Water Quality Oversight Council (WQOC), if they meet host nation equivalent certification testing requirements or applicable U.S. and international food safe material regulations. This applies to bladders or synthetic (e.g., rubber, plastic) tank liners as well.

(5) Comply with references (u) and (v).

d. Food service grade disposable gloves

e. Dishwashing soap (National Stock Number (NSN) 7930-00-899-9534), hand soap, and skin sanitizer

- f. FFHC water container delivery vehicle
 - g. Disinfectant wipes
 - h. 5 percent sodium hypochlorite solution (unscented and no additives; NSN 6810–00–598–7316, five-gallon container); or solid calcium hypochlorite (NSN 6810–00–255–0472, 100 pound drum); or solution concentrate. Disinfectants should be certified to NSF/ANSI Standard 60.
 - i. FFHC water hoses will be certified to NSF/ANSI Standard 61, or will be approved by the RWQB, in consultation with the WQOC, if they meet host nation equivalent certification testing requirements or applicable U.S./international food safe material regulations.
 - j. Long handle scrub brush (NSN 7920–00–061–0038), only for FFHC use.
 - k. N,N- diethyl-p-phenylenediamine (DPD) portable test kit for measuring free chlorine residual.
 - l. Water dispenser which uses five-gallon plastic containers. Dispenser consists of the container, dispenser reservoir, spigot, drip tray and cabinet.
 - m. Clean, dry storage cabinet for storing all materials used for working with, cleaning and disinfecting water containers.
 - n. Sampling and testing equipment, to include:
 - (1) Test kits/instruments/supplies/reagents capable of measuring free and total chlorine in drinking water samples using U.S. Environmental Protection Agency (EPA) DPD Method 8021 (for free available chlorine (FAC)) and 8167 (for total chlorine) in the low range (0.02 to 2.00 milligrams per liter (mg/L)) and high range (0.1 to 8.0 mg/L). For a list of recommended test kits/instruments/supplies/reagents, refer to <https://www.med.navy.mil/Navy-and-Marine-Corps-Force-Health-Protection-Command/Environmental-Health/Environmental-Programs/Drinking-Water-Programs/>.
 - (2) A U.S. EPA approved test kit/supplies/reagents capable of detection and quantification of total coliforms and *E. coli* in drinking water samples. For a list of recommended U.S. EPA approved test kit/supplies/reagents, refer to <https://www.med.navy.mil/Navy-and-Marine-Corps-Force-Health-Protection-Command/Environmental-Health/Environmental-Programs/Drinking-Water-Programs/>.
2. Nonstandard Equipment. Locally acquired trucks and trailers and containers of all sizes are frequently used to transport and store bulk drinking water at the installation. Nonstandard transportation equipment and containers are generally acceptable as long as they are in good

condition (e.g., have no leaks, can be sealed, are structurally sound), and have never been used to transport or store petroleum products such as fuels or pesticides or other toxic substances. Water contact material surfaces will be certified to NSF/ANSI Standard 61, or be approved by the RWQB, in consultation with the WQOC, if they meet host nation equivalent certification testing requirements or applicable U.S./international food safe material regulations.

3. The Operator in Responsible Charge (ORC) will select all equipment and materials to be used and seek concurrence of the IWQB (and RWQB as needed) prior to usage.

APPENDIX I HAULED WATER PROCEDURES

1. Portable Container Cleaning

a. Non-bulk Water Dispenser Container and Can

(1) Remove the caps of the empty water containers.

(2) Add one gallon of dishwashing soap solution (see Appendix H, subparagraph 1.e). Shake the can vigorously for one minute and then drain the solution out of it. Drain some of the solution through the spigot to clean it .

(3) Rinse the can at least three times with fit for human consumption (FFHC) water to remove the dishwashing soap solution, or until no more soap suds are produced. Ensure that some of the FFHC water flows through the spigot.

(4) Remove empty containers with stains and cracks from service and tag them as not in service. Inform Supply Tech for disposition.

(5) Wash non-bulk containers and caps at least weekly for continuous use, or after each use when not used continuously.

(6) Certify containers as clean by labeling containers with the date they were last cleaned.

b. Bulk Water Storage Containers

(1) Clean the outside of the water container with water and a stiff brush.

(2) Examine the inside of the container from the fill cap or inspection port. Inspect for dirt, staining or foul smell.

(3) If dirt, staining or foul smell is observed, thoroughly wash the inside surfaces of the water container with dishwashing soap solution and a long handle scrub brush. For larger tanks, a pressure-washer with an extension nozzle may be used. Tanks that are too large or otherwise cannot be cleaned by these methods may need to be entered, triggering confined space entry requirements that are beyond the scope of this policy.

(4) Clean the valves, spigots and transfer hoses by flushing the soap solution through them. Drain the container by removing the drain plug.

(5) Rinse the container and spigots with FFHC water until the soap solution is completely removed.

(6) Wash empty water storage containers, larger than five gallons, at least once per week; except as noted in subparagraph 1.b.(3).

c. Use FFHC water only for the soap solution and rinse water.

d. Dispose of the soapy water in an environmentally safe manner. Discharge to a sanitary sewer if available. Do not discharge to a stream, pond, lake or storm sewer. Discharge the soapy water to an area where it can soak directly into the ground if no sanitary sewers are available.

2. Non-bulk Container Disinfection

a. Non-bulk Water Dispenser Containers and Cans

(1) Fill the container with two liters of water. Pour at least 10 milliliters (mL) of sodium hypochlorite solution inside the container (refer to Appendix J for chlorine solution information). Shake the container to disinfect. Be sure to cover all areas inside the container when shaking.

(2) Let stand for five minutes.

(3) Rinse thoroughly with FFHC water until no traces of the solution adhered on the container.

(4) Disinfect non-bulk containers and caps (if reused) before every use.

(5) Certify containers as disinfected by labeling containers with the date they were last disinfected.

b. Bulk Water Storage Containers

(1) Preferred Disinfection Method:

(a) Fill the container full of water with a 100-milligram per liter (mg/L) chlorine solution (refer to Appendix J for chlorine solution information).

(b) Mix or slosh the solution around so it contacts all the surfaces.

(c) Run one gallon of the solution through the valves and spigots.

(d) Keep all interior surfaces wet with the solution for at least a 60-minute contact time.

(e) Refer to subparagraph 2.e. for disposal.

(2) Alternate Disinfection Method 1:

- (a) Use this method if either water or the required chemicals are in short supply.
- (b) Prepare five gallons of water with a 100-mg/L chlorine concentration (refer to Appendix J for chlorine solution information).
- (c) Using a long-handled water brush dedicated for drinking water use, swab the interior walls of the tank every 10 minutes or as often as necessary to keep the walls wet with the solution for 1 hour.
- (d) Run a gallon of the solution through each valve and spigot.
- (e) Refer to subparagraph 2.e. for disposal.

(3) Alternate Disinfection Method 2:

- (a) This method is less corrosive but is more time consuming and results in larger amounts of residual chlorine.
- (b) Use a 50 mg/L chlorine solution (refer to Appendix (J) for chlorine solution information).
- (c) Fill the entire tank with chlorine solution and close all valves and ports.
- (d) Keep in the tank for 24 hours.
- (e) Run a gallon of the solution through the valves and spigots.
- (f) Refer to subparagraph 2.e. for disposal.

(4) Rinse the container and spigots three times with FFHC water. A rinse should use moving water from a hose (in a bulk tank) or from shaking/rocking (a smaller container), and should ensure that all surfaces are exposed to a strong current of moving water.

- c. Use FFHC water only for the chlorine disinfection solution.
- d. The disinfecting solution can be used in more than one container. Planning to disinfect several containers consecutively, moving the solution from one container to another, can conserve both chemicals and water. Re-test the chlorine solution to ensure proper strength before re-using the solution.

e. Drain the disinfecting solution and rinse water into a sanitary sewer or other approved location. Do not fill the container with FFHC water if disinfecting solution is still present. Local requirements may require dichlorination prior to discharging. In this case, contact the Operator in Responsible Charge (ORC) for assistance.

3. Portable Container Filling

a. Fill and offload containers using sanitary protocols (refer to reference (u)). When available, use a direct (valve-to-valve) sanitized connection with adequate protection against backflow. If necessary, water may be transferred through an air gap. With air gap transfers, spigot or overhead hose must be sanitary (ensuring and maintaining sanitary control and conducting surveys). The transfer must be adequately protected from airborne contamination (e.g., provide a clean area for transfers, preferably protected from wind; no outdoor transfers during wind storms).

b. All connections and fittings for transfer of water must be properly protected to prevent any external contamination. Cap fill connections and do not allow the connections to come in contact with non-sanitized surfaces.

c. Non-bulk Container Filling

(1) Visually inspect the container for contamination (e.g., dirt, sand and insects). If contamination is found, follow the cleaning and disinfecting procedures above.

(2) Open the FFHC water valve and refill with FFHC water from the refilling stand.

(3) Close valve and place new cap on the container to seal. If the cap is used, verify that it has been cleaned and disinfected.

(4) Place the capped containers inside the delivery vehicle.

(5) Check chlorine level at Fill Station into non-bulk containers and ensure that it is at least 1 mg/L and no more than 4 mg/L free available chlorine (FAC).

d. Bulk Water Fill Station Sanitation and Backflow Prevention

(1) Ensure that the fill station has proper backflow prevention on the fill line per reference (w). Check the backflow device label to ensure the device has been tested in the last six months and has passed testing. Cap hoses when not in use, and store end caps above ground.

(2) Ensure that the fill hose is approved for FFHC water use (see Appendix H, subparagraph 1.i.).

(3) Keep the refilling stand and surrounding area clean before, during and after the filling procedures.

(4) Lock the refilling station after each use.

(5) Check chlorine level at Fill Station into bulk containers and ensure that it is at least 1 mg/L and no more than 4 mg/L.

4. Handling and Issuing Procedures

a. Non-bulk Water Dispensers

(1) Check the water dispensers daily for the items listed in subparagraphs 4.a.(2) through 4.a.(10), increasing the frequency if needed due to water use.

(2) Remove the dispenser water container when the water level is less than $\frac{1}{4}$ full and replace with a full container. Wear a clean pair of disposable gloves when replacing containers from the water dispenser.

(3) Remove the container from the dispenser and check the dispenser reservoir for signs of algae/mold, rust, accumulated dirt or sludge.

(a) If the dispenser reservoir has been inspected and no signs of algae/mold, rust, accumulated dirt or sludge is found, replace with new container of water.

(b) If the dispenser reservoir is found to have some visible algae/mold, rust accumulated dirt or sludge, drain the dispenser reservoir, flush with FFHC water, then re-inspect.

(c) If the dispenser reservoir needs more cleaning than just draining, tell the customer that the dispenser will be pulled out to be cleaned and disinfected. Tag the pulled-out dispenser as out of service. A dispenser replacement will be issued until the pulled-out dispenser is cleaned, disinfected and in operating condition.

(4) Spray the spigot of the new container with 5 percent sodium hypochlorite (unscented) solution and wipe dry with clean paper towel.

(5) Remove the sealed cap of the container and place the water container in an upside-down position into the dispenser reservoir.

(6) Clean and remove accumulated water in the drip tray. Check and clean the dispenser faucet.

(7) Visually check the dispenser for signs of rusting and deterioration.

(8) Check and record any discrepancies noted in the water dispensers and report any abnormal operating conditions to the ORC.

(9) Always cap empty containers with caps from the replacement containers after servicing.

(10) When spare full containers are issued to facilities, place a “Notice” on the containers that contains these instructions (refer to subparagraph 4.a.) on how to re-fill the dispenser and to cap empty containers after refilling is complete.

b. Bulk Water Storage Containers Handling and Issuing Procedures

(1) When the water container is not in use, all hatches should be locked, inlet and outlet pipes securely capped, and hoses capped and stored off the ground in a secure location.

(2) If at any time the sanitary condition of the container or hoses and equipment has been compromised, the container and equipment will be disinfected.

(3) Water tanks, hoses and equipment do not have to be re-cleaned and re-disinfected after the initial delivery provided that the above procedures were followed, and the equipment is used daily to deliver water and the equipment remains sanitary. The water hauling equipment should be routinely cleaned and disinfected if not used for four weeks or more. Note in Hauled Drinking Water Log (Appendix C) when this is done.

5. Transportation and Delivery Procedures

a. Non-bulk Containers

(1) Keep containers covered and protected from contamination.

(2) Keep containers shaded.

(3) Document hauled water data in Hauled Drinking Water Log (Appendix C).

b. Bulk Water

(1) Inspect receiving tank and connections for sanitary condition and existing water capacity.

(2) Field test the chlorine residual and collect a coliform sample in tanker truck and receiving bulk tank prior to filling the receiving bulk tank and document in Hauled Drinking Water Log (Appendix C).

(3) Check and record the chlorine level at point of delivery to receiving bulk storage containers to ensure it is at least 1 mg/L FAC.

(a) If between 0.2 and 1 mg/L FAC, re-chlorinate to 1 mg/L FAC and deliver.

(b) If less than 0.2 mg/L FAC, re-chlorinate to 2 mg/L FAC and ensure that at least 1 mg/L FAC remains after 30 minutes of contact time.

(4) Ensure that the truck to storage tank connection has proper backflow prevention on the fill line per cross-connection references in Appendix B.

(5) Ensure that the connections are approved for FFHC water use.

(6) Keep the storage tank and surrounding area clean before, during, and after the filling procedures.

(7) Document in log volume of water transported and the chlorine residual.

(8) Document in log the length of time that the bulk water was in transit. Bulk water will not be stored in a bulk water tank for more than 3 days.

(9) Secure/lock the storage tank access opening after each delivery.

(10) Refer to subparagraph 5.a.(1)(b) in Chapter 3 for procedural requirements when coliforms are detected.

6. Container Storage

a. Non-Bulk Containers

(1) Keep containers (full or empty) covered and protected from contamination.

(2) Keep containers in a shaded location or indoors if possible.

(3) Keep containers capped and sealed.

b. Bulk Water Containers

(1) Cover, seal and lock bulk water containers to protect from tampering.

(2) Keep containers in a shaded location or indoors if possible.

APPENDIX J
CHLORINE DOSE CALCULATION AND MEASUREMENTS

This information comes from the Technical Bulletin: Sanitary Control and Surveillance of Field Water Supplies. Tables J-1 and J-2 provide volumes in drops (dp), milliliters (mL), teaspoons (tsp), tablespoons (tbls), cups (cp), quarts (qt) and gallons (gal) of liquid bleach, dry calcium hypochlorite and a concentrated calcium hypochlorite solution that, when added to the indicated volume of water, will provide the approximate chlorine dose (in mg/L) indicated. Commercial chlorine bleach used in the disinfection process should not contain any dyes or fragrances.

Volumes of five-percent liquid (typical household) bleach that will provide approximately the indicated chlorine dose when added to the corresponding volume of water

Gallons to be chlorinated	1 mg/L	2 mg/L	5 mg/L	10 mg/L	100 mg/L
5	6 dp	0.75 mL	1.9 mL	3.8 mL	8 tsp
10	0.75 mL	1.5 mL	3.8 mL	1.5 tsp	16 tsp
25	2 mL	3.8 mL	2 mL	4 tsp	1 cp
36	3 mL	5.5 mL	2.75 mL	2 tbls	1.25 cp
50	4 mL	1.5 tsp	4 mL	3 tbls	1.75 cp
100	7.7 mL	3 tsp	3 tbls	5 tbls	3.25 cp
400	2 tbls	4.25 tbls	0.75 cp	1.5 cp	3 qt
500	3 tbls	0.33 cp	1 cp	1.75 cp	1 gal
1000	0.33 cp	0.67 cp	1.75 cp	3.25 cp	2 gal
2000	0.66 cp	1.34 cp	3.5 cp	6.5 cp	4 gal

Table J-1: Sodium Hypochlorite 5% (unscented)

Volumes of 70-percent available Calcium Hypochlorite (or solution concentrate¹) that will provide the indicated chlorine dose when added to the corresponding gallons of water

Gallons to be chlorinated	1 mg/L	2 mg/L	5 mg/L	10 mg/L	100 mg/L
5	0.9 mL	1.7 mL	4.1 mL	8.3 mL	0.25 tsp
10	1.7 mL	3.3 mL	8.3 mL	16.6 mL	0.5 tsp
25	4.1 mL	8.3 mL	20.7 mL	41.4 mL	1.25 tsp
36	6 mL	11.9 mL	29.8 mL	0.9 mL	1.75 tsp
50	8.3 mL	16.6 mL	0.6 mL	0.25 tsp	2.5 tsp
100	16.6 mL	33 mL	0.25 tsp	0.5 tsp	5 tsp
400	0.92 mL	1.9 mL	1 tsp	2 tsp	19 tsp
500	1.3 mL	0.5 tsp	1.25 tsp	2.5 tsp	0.5 cp
1000	0.5 tsp	1 tsp	2.5 tsp	5 tsp	1 cp
2000	1 tsp	2 tsp	5 tsp	10 tsp	2 cp

Table J-2: Calcium Hypochlorite

Note:

¹The shaded area of the table indicates the volume of a concentrated solution made from dissolving 1 tsp of Calcium Hypochlorite in a half canteen cup (1½ cups) of water.

APPENDIX K
OVERSEAS DRINKING WATER LABORATORY DECISION TREE

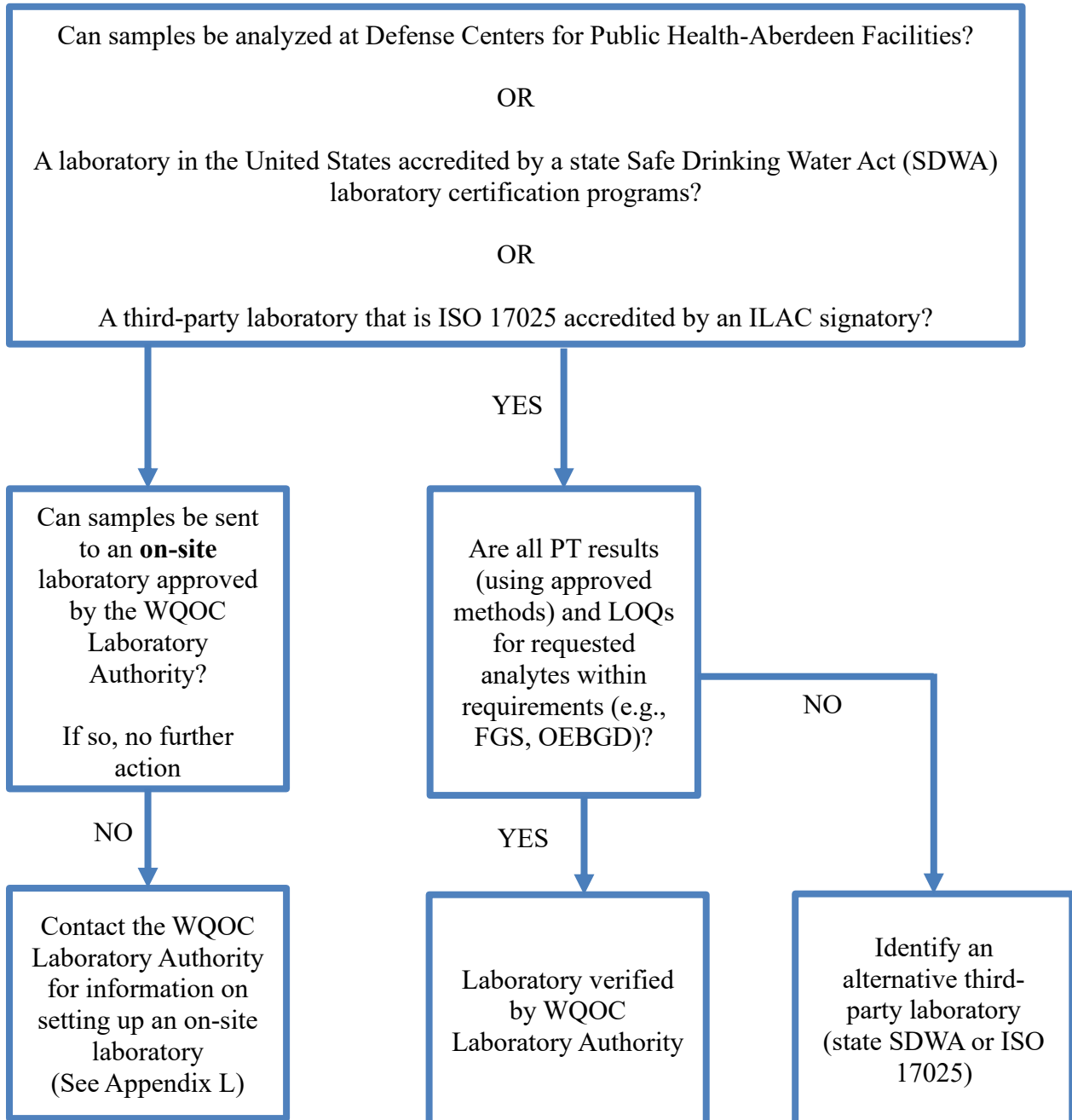


Figure K-1. Laboratory Decision Tree

APPENDIX L

OVERSEAS DRINKING WATER LABORATORY APPROVAL PROCESS

This section applies to non-Defense Centers for Public Health (DCPH)-Aberdeen laboratories, or laboratories that are not third-party accredited.

1. Overseas Drinking Water Laboratory Approval Program. The Water Quality Oversight Council (WQOC) Laboratory Authority may recommend laboratories for approval that do not meet the accreditation requirements listed in Chapter 4. See Appendix P for a diagram showing the three stages of the Overseas Drinking Water (ODW) Laboratory Approval Process: initiation, assessment and maintenance.

a. Individuals and Organizations Responsible for the Approval Process

(1) WQOC Laboratory Authority

(a) Responsible for assessing and recommending for approval non-accredited Installation Compliance Laboratories. The WQOC Laboratory Authority will also verify non-accredited third-party laboratories in host nations.

(b) Additional third-party assessors and experts may be used, but these third parties have no authority for approval decisions. When a third-party assessor is used, the results of the assessment must be provided to the WQOC Laboratory Authority for review and approval.

(2) The WQOC Chair has signature authority for all laboratory approval decisions.

b. Plans for Approval of Laboratories. The WQOC Laboratory Authority will plan and document the following approval process:

(1) Inventory of ODW laboratories and their approval status and sample analysis capability.

(2) Proficiency Testing (PT) results.

(3) Assessment details.

(a) Schedules of laboratories to be assessed.

(b) Specific types of analyses assessed.

(c) Protocols to follow during assessments.

(d) Strategy for assessing laboratory performance (e.g., PTs, limits of quantitation (LOQs)).

(e) Information to review prior to an on-site assessment.

(f) Preparation of reports, including assessments, findings and recommendations related to laboratory quality assurance (QA) and approval status.

(4) Development and provision of guidelines, forms and checklists to help the Region Water Quality Board (RWQB), Installation Water Quality Board (IWQB) and laboratories prepare specific information for submittal with a request for laboratory approval.

c. Approval Process. The approval process begins when the installation makes a request in writing to the WQOC Laboratory Authority. After reviewing the request, a mutually agreeable date and time should be set for an on-site laboratory assessment. This request must list the scope of analyses for which the laboratory is seeking approval. The request may be one of the following types:

(1) First-time approval for chemistry, microbiology and parasitology.

(2) Approval to analyze additional or newly regulated contaminants and water quality indicators.

(3) Reapplication for approval after correction of deficiencies, which resulted in the revocation of approval status.

d. Types of Approval. After review of PT sample results and an on-site assessment, the WQOC Laboratory Authority will provide a written assessment report and recommend classification of the laboratory for each contaminant or group of contaminants according to the following rating scheme:

(1) Approved. A laboratory that meets all the regulatory performance criteria as explained in Chapter 4 and all other applicable regulatory requirements.

(2) Interim Approval. A laboratory that has been assessed by the WQOC Laboratory Authority, demonstrates its ability to meet the requirements specified in Chapter 2, and operates within the requirements of Chapter 4 may receive interim approval. A laboratory with interim approval may analyze drinking water samples for compliance purposes. Interim approval may not be given if the WQOC Laboratory Authority believes that the laboratory cannot perform an analysis within the acceptance limits specified in the regulations. Once the final laboratory assessment report is distributed to the installation, the laboratory must submit a Corrective Action Plan (CAP), including Objective Quality Evidence (OQE) for addressing deficiencies to

the WQOC Laboratory Authority. The WQOC Laboratory Authority must approve the CAP to maintain interim approval.

(3) Not Approved. A laboratory that has significant deficiencies, has not implemented an active CAP or has failed to demonstrate its ability to meet the requirements specified in Chapter 2 or Chapter 4 will be categorized as “Not Approved,” and will not be used for compliance reporting. The RWQB must notify any laboratory in this category of its status. A memorandum from the WQOC Laboratory Authority to the WQOC Chair will act as a formal notification of the laboratory’s recommended status.

e. Considerations for Laboratory Approval

(1) Laboratory Personnel. The laboratory will have sufficient supervisory and other personnel, with the necessary education, training, technical knowledge and experience for their assigned functions. The laboratory must have more than one analyst or a documented contingency plan to not only account for the analyst’s absence, but to account for short holding time tests, and laboratory and/or staff emergencies. Laboratories will have standard operating procedures (SOPs) on personnel training and maintain records on all personnel. These records will include documentation for all job-related formal education and training which pertains to any aspect of his or her responsibilities, including analytical methodology, laboratory safety, demonstrations of capability, sampling, QA and data analysis.

(2) Laboratory Director, Manager or Technical Director. The laboratory director/manager will be a qualified professional with the technical education, experience and managerial capability commensurate with the size/type of the laboratory. The laboratory director/manager is ultimately responsible for ensuring that all laboratory personnel have demonstrated proficiency for their assigned functions and that all data reported by the laboratory meet the required QA criteria and regulatory requirements.

(3) Quality Assurance Manager. The QA manager will be independent from the laboratory management, if possible, and have direct access to the highest level of management. The QA manager will have education in a related field, training in quality assurance principles commensurate with the size and sophistication of the laboratory, and at least one year of experience in QA. The QA manager will have a working knowledge of laboratory analysis and a basic understanding of the methods that the laboratory employs. The QA manager must also remain independent from the compliance testing performed at the laboratory. The following are QA manager position requirements:

(a) If the installation compliance laboratory is run by a base operating support contract (BOSC), the BOSC is required to provide the laboratory-specific QA manager.

(b) To maintain third-party objectivity, QA managers must be staffed by personnel outside of the chain of command and operational control of the laboratory staff (e.g., if the

laboratory is run by Public Works (Utilities), the QA manager position may be filled by trained environmental staff who meet the credential requirements).

(c) Installation-specific QA managers must also perform annual internal assessments of the on-site installation compliance laboratory.

(4) Laboratory Ethics and Fraud Detection and Deterrence. Laboratories will have an ethics policy and implement a fraud detection and deterrence program, including use of data validation and verification techniques, or analyst notation and sign-off on changes to data.

(5) Department of Defense Contracting Policies. Additional information can be found in reference (m). Laboratories are required to comply with the prohibitions identified in the Department of Defense (DoD) Quality System Manual. These include the following prohibited practices; however, this is not an exhaustive list:

- (a) Fabrication, falsification or misrepresentation of data.
- (b) Improper clock setting (or improper date/time recording).
- (c) Unwarranted manipulation of samples, software or analytical conditions.
- (d) Misrepresenting or misreporting quality control (QC) samples.
- (e) Improper calibrations.
- (f) Concealing a known analytical or sample problem.
- (g) Concealing known improper, unethical behavior or action.
- (h) Failure to report the occurrence of a prohibited practice or known improper or unethical act to the appropriate contract representative or appropriate government official.

(6) Laboratory Facilities. Laboratory facilities will be clean, temperature and humidity controlled and will have adequate lighting at bench tops. The laboratory will maintain effective separation between areas where testing activities are incompatible, minimize traffic flow, and ensure that contamination does not adversely affect data quality. Bench tops and floors will be of a material that is easily cleaned and disinfected. Laboratory facilities will have sufficient bench top area for processing samples, storage space for reagents, laboratory supplies, glassware, portable equipment, floor space for incubators, biological safety cabinet, refrigerators and associated areas for cleaning glassware and sterilizing materials. When appropriate, laboratory facilities will have provisions for disinfection and proper disposal of microbiological wastes and have a room or other area (e.g., fume hood), capable of being darkened to near-complete darkness for microscopic examination of slides.

2. Requirements for Maintaining Approval Status

a. Methodology. Laboratories must use the methods specified in Chapter 2. The U.S. Environmental Protection Agency (EPA) Office of Water provides a list of all the analytical methods, which is available at www.epa.gov/dwanalyticalmethods. The WQOC Laboratory Authority will evaluate non-EPA-approved methods for equivalency. RWQBs will submit the method SOPs in English to the WQOC Laboratory Authority for review.

b. Proficiency Testing (PT) Samples

(1) In order to maintain approval, on-site compliance laboratories approved for chemical contaminants must satisfactorily analyze PT samples at least annually for each analyte and by each method used to analyze drinking water samples. PT samples will be obtained from PT providers that are accredited under International Standards Organization (ISO)-17043 (General Requirements for Proficiency Testing) from an International Laboratory Accreditation Cooperation (ILAC)-approved signatory. Use of certified reference materials (CRMs) as PTs may be permitted if funding challenges are a factor; however, the WQOC Laboratory Authority must pre-approve the CRM usage.

(2) PT samples will be processed and analyzed in the same manner as regular drinking water samples. A laboratory will employ the same quality control, sequence or analytical steps, and replicates as used when analyzing routine samples. The laboratory will also use the same analyst that processes regular samples. If a laboratory has more than one analyst, it must rotate performance of PTs between analysts. If there is only one analyst that performs all the drinking water compliance testing for a laboratory, that analyst is the only analyst authorized to perform and pass all PTs. The data submitted by the laboratory from the analysis of the PT samples will be evaluated against the statistically based performance criteria as defined by the PT provider. If the laboratory fails the PT analysis, another PT sample must be processed and analyzed immediately following implementation of the necessary corrective actions. The laboratory will maintain a history of at least two successful PT rounds out of the most recent three attempts for each analyte-matrix-method combination on their scope of accreditation. Analyte-matrix-method combinations that do not meet these criteria must be removed from the approved list of testing.

(3) To approve a laboratory for analysis of a contaminant by more than one method, the laboratory must analyze PT samples for each method for which it seeks approval. The methods listed on the laboratory's approval certificate must be the methods by which it analyzed the PT samples. There may be a situation where if there are two analysts, one passes a certain number of PTs for specific compliance parameters but fails the others, or vice versa. If the entire parameter list is covered with passing PTs, then the laboratory may be approved for the PT program if all other requirements are met.

(4) The laboratory must be able to provide documentation to the WQOC Laboratory Authority that the personnel analyzing any PT sample is a laboratory employee who routinely analyzes drinking water compliance samples for that analyte using the method being used for the proficiency test. Laboratories that fail two consecutive PT samples for the same parameter will lose their approval for that parameter, and must not analyze any samples for compliance purposes until they have performed a corrective action and satisfactorily reanalyzed PT samples as required by the WQOC Laboratory Authority. If the entire parameter list is covered with passing PTs, then the laboratory may be approved for the PT program if all other requirements are met.

(5) If the approved laboratory consistently does not analyze the PT samples within the acceptance limits, and it does not perform and accept the appropriate corrective action, the WQOC Laboratory Authority may recommend revocation of their approval status.

c. On-Site Assessment

(1) The WQOC Laboratory Authority will conduct on-site assessments using established quality system requirements to evaluate approved laboratories at least biennially. The WQOC Laboratory Authority may perform a desktop review in lieu of an on-site assessment on a case-by-case basis with concurrence from the WQOC, when conducting an on-site assessment may not be feasible. If the laboratory undergoes a major change in personnel, quality systems, instrumentation, laboratory location or repeatedly fails its analysis of PT samples, the WQOC Laboratory Authority may consider conducting a more frequent evaluation that may include additional on-site visits or data calls. Additionally, the WQOC Laboratory Authority may conduct additional on-site assessments if new tests are added to the laboratory's scope.

(2) The WQOC Laboratory Authority will use resources within the Naval Sea Systems Command (NAVSEA) Laboratory Quality and Accreditation Office (LQAO) to conduct PT reviews and on-site assessments. The on-site Laboratory Assessment Team will perform the on-site laboratory assessments, review laboratory PT data, and make recommendations to the WQOC Chair concerning the approval status of the laboratories.

(3) The WQOC Laboratory Authority will issue a Request for Information (RFI) to the installation 30 to 60 days prior to the scheduled on-site laboratory assessment. An example of the RFI request is included in Appendix Q. The example RFI is for reference purposes only and may not be all inclusive. RFI requests will be specific to the laboratory being assessed and at the discretion of the WQOC Laboratory Authority.

(4) On-site Laboratory Assessment Team members will be experienced professionals, hold at least a bachelor's degree or equivalent education, and have appropriate laboratory experience. The WQOC Laboratory Authority will assign the team.

(5) Team members should also have experience in laboratory procedure evaluation and QA; be familiar with drinking water standards, data reduction and reporting techniques; be technically conversant with the analytical techniques being evaluated; and be able to communicate effectively, both orally and in writing.

d. Notification of Major Changes

(1) WQOC-approved laboratories will informally notify (via email or phone) their IWQB, or RWQB and the WQOC Laboratory Authority within 24 hours, and follow up in writing within 30 days of major changes in personnel, equipment or laboratory location. A major change in personnel is defined as the loss or replacement of the Laboratory Director, Manager, Technical Director or Quality Manager, or a situation in which a trained and experienced analyst is no longer available to analyze a particular parameter for which approval has been granted.

(2) The IWQB or RWQB will then report this information to the WQOC Laboratory Authority, who will discuss the situation with the Laboratory Director or Manager and establish a schedule, including deadlines, for the laboratory to address major changes. An on-site assessment may be necessary to evaluate the effectiveness of the changes. If the WQOC Laboratory Authority determines that the laboratory can no longer produce valid data, they will recommend to the WQOC Chair approval revocation.

(3) All RWQBs will informally notify (via email or phone) the WQOC Laboratory Authority within 24 hours and follow up in writing within 30 days if there is a change to a laboratory to ensure the contract and laboratory meet Navy ODW requirements.

3. Approval Timeline

a. Prior to an on-site assessment, the laboratory will have 30 to 60 days to respond to the WQOC Laboratory Authority's Request for Information (RFI) (Appendix Q). The RFI will be reviewed by the WQOC Laboratory Authority prior to the scheduled on-site assessment.

b. After an on-site assessment, the WQOC Laboratory Authority will provide a summary report within 30 days to the region and installation which will detail the findings of the assessment based on the requirements outlined in this appendix.

c. The installation on-site laboratory must provide the WQOC Laboratory Authority with a corrective action plan for the findings documented in the summary report within 30 days. The Laboratory Authority will provide feedback on whether specific corrective actions plans are acceptable or unacceptable within 15 days.

d. The installation must submit at least quarterly updates to their corrective action plan, providing the Laboratory Authority with OQE documentation to support closure of any findings.

e. Once the WQOC Laboratory Authority confirms all findings have been adequately closed and addressed via review of provided OQE, the Laboratory Authority will issue an official recommendation memo of approval to the WQOC Chair. The WQOC Chair will provide an official approval letter, with a two-year expiration, within 30 days of receiving the WQOC Laboratory Authority recommendation for approval.

4. Criteria and Procedures for Revoking Approval

a. Criteria for Revoking Approval Status. A laboratory may be downgraded from approved or interim approved status to “not approved” for a particular contaminant analysis for the following reasons:

- (1) Reporting PT data from another laboratory as its own.
- (2) Falsification of data or other inappropriate practices.
- (3) Failure to use the analytical methodology specified in Chapter 2 or a WQOC-approved equivalent.
- (4) Failure to successfully analyze a PT sample, or any other unknown test sample for a particular contaminant within the acceptance limits specified.
- (5) Failure to satisfy that the laboratory has implemented and evaluated corrective actions from deviations identified during on-site assessments.
- (6) Failure to report compliance data in a timely manner, thereby preventing compliance with drinking water regulations and endangering public health. Data that indicates the system has exceeded a maximum contaminant level (MCL) will be reported within five business days to the IWQB to allow for preparation of mandated public notifications.
- (7) Refusal to participate in an on-site assessment.
- (8) Failure to adhere to contract or agreement performance measures.
- (9) Failure to participate in data calls as required by the WQOC.
- (10) Failure to informally notify (via email or phone) within 24 hours and formally notify (via official written correspondence) the WQOC Laboratory Authority within 30 days of major changes (e.g., personnel, equipment or laboratory location).
- (11) Failure to demonstrate that the laboratory is maintaining the required standard of quality, based upon an on-site assessment or data calls.

(12) Failure to report compliance data to the installation in a timely manner, thereby preventing compliance with regulations and endangering public health. Data that indicates an exceedance of a MCL will be reported in compliance with Chapter 5 of this manual.

b. Reinstatement of Approval. Through a written request, a laboratory may seek reinstatement of approval, when and if the laboratory can demonstrate to the WQOC Laboratory Authority's satisfaction that the deficiencies which led to revocation have been corrected. This may include an on-site assessment, successful analysis of blind or PT samples, or any other measures deemed appropriate by the WQOC Laboratory Authority.

5. Laboratory Quality Management System

a. Laboratories performing analysis of drinking water samples under the ODW Laboratory Approval Process are required to operate within a formal Quality Management System (also known as a quality system) which covers, at minimum, all laboratory activities including sampling, analytical methods, QC checks, instrument operation, data generation, data validation and verification, corrective action procedures, and recordkeeping.

b. All laboratories analyzing drinking water compliance samples must adhere to any required QC procedures specified in the EPA-approved or WQOC-approved equivalent drinking water methods to ensure that analytical data generated is technically valid, legally defensible, and of known and acceptable quality. To accomplish these goals, each laboratory must prepare a written description of its QA activities in a QA manual. The QA manual will contain a laboratory organization chart or staff listing that identifies staff organization and responsibilities, including QA Manager and Laboratory Director. All laboratory personnel will have documented training in the QA manual. The laboratory QA Manager will ensure the QA manual is reviewed and updated when necessary, or at least annually. The review must be documented. The plan will be submitted to the WQOC Laboratory Authority assessment team for review prior to the on-site visit. All laboratories must maintain copies of QA manuals (including SOPs) in English and the host nation language.

c. The laboratory QA manual will be a separately prepared document. However, documentation for many of the listed QA manual items may be referenced to the appropriate sections of this manual, the laboratory's SOPs, or other literature.

d. At a minimum, each QA manual must address the following items:

(1) Laboratory Organization and Responsibility

(a) Include a chart or table showing the laboratory organization and lines of responsibility, including QA managers.

(b) List the key individuals who are responsible for ensuring the production of valid measurements and the routine assessment of measurement systems for precision and accuracy (i.e., who is responsible for internal assessments and reviews of the implementation plan and its requirements).

(c) Describe training to keep personnel updated on regulations and methodology.

(d) If the laboratory only has one analyst on staff, develop a written contingency plan in the event of an analyst absence, such as during emergency situations or a planned vacation, to account for analysis of short hold time parameters.

(e) Maintain records for when laboratory personnel have demonstrated initial proficiency/capability for the methods they perform. The laboratory will document each initial demonstration of capability such that the following information is readily available for each affected employee:

1. Analysts involved in preparation or analysis.
2. Analytes or measured parameters.
3. Identification of methods performed.
4. Identification of laboratory-specific SOP used for analysis, including revision number.
5. Dates of analysis.
6. Summary of analyses.

(f) Maintain annual records for continuing demonstration of capability. Annual demonstration of capability must be performed by one of the following methods:

1. Acceptable performance of a blind sample (this may include annual PT sample); or
2. At least four consecutive laboratory control samples with acceptable levels of precision and bias. The laboratory must determine the acceptable levels of precision and bias prior to analysis.

(2) Sample Data Objectives. The laboratory must adhere to all quality control/quality assurance requirements of the EPA-approved methodology and maintain all records used to generate and report the data.

(3) Standard Operating Procedures with Dates of Last Revision. The laboratory will follow the following requirements:

(a) Maintain a list of SOPs that accurately reflect all phases of current laboratory activities.

(b) Ensure that current copies of SOPs are in the laboratory and in the QA manager's files.

(c) Ensure that SOPs are reviewed annually and revised as changes are made.

(d) Ensure that SOPs have signature pages and revision history with dates.

(4) Laboratory Sample Receipt and Handling

(a) Bound laboratory notebooks, if used, will be filled out in ink; entries must be dated and signed (a secure, password protected, electronic database is acceptable).

(b) Store unprocessed and processed samples at the proper temperature, isolated from laboratory contaminants, standards and highly contaminated samples and, if necessary, each other.

(c) Do not exceed holding times.

(d) Maintain integrity of all samples (i.e., by tracking samples from receipt by laboratory through analysis to disposal).

(e) Require Chain-of-Custody procedures for samples. For examples of Chain-of-Custody procedures, refer to Appendix A of reference (w).

(f) Laboratory sample receipt and handling procedures must specify criteria for rejection of samples that do not meet shipping, holding time or preservation requirements.

(g) Specify procedures for providing notification to sample originators within 48 hours if samples do not meet shipping, holding time or preservation requirements.

(h) Hold samples for reanalysis, where possible, until data review step is complete.

(5) Instrument Calibration Procedures and Documentation Requirements

(a) Procedures will specify type of calibration used for each method and frequency of use as well as acceptance criteria.

(b) Laboratory will document calibration standards' source, age, storage and labeling.

(c) All initial calibrations will be verified with a standard obtained from a second manufacturer or from a different lot.

(6) Analytical Procedures

(a) Cite complete method reference.

(b) Describe QA/QC procedures required by the methods.

(7) Data Documentation, Review and Reporting. Describe the following conditions:

(a) Documentation of calculations for generating and reporting data results.

(b) Data review process.

(c) Reporting procedures, including format.

(d) The procedure for data corrections, to include the signature of the person authorizing the correction and the person making the correction.

(8) Type of Quality Control Checks and the Frequency of Their Use. Procedures for chemical testing will include or reference the following items where applicable, and include any additional QC checks required by the analytical test method.

(a) Instrument performance check standards.

(b) Frequency and acceptability of method detection limit (MDL) calculation and reporting limit calculations and verifications.

(c) Frequency and acceptability of demonstration of low-level capability.

(d) Calibration, internal and surrogate standards.

(e) Laboratory reagent blank, field reagent blank and trip blank.

(f) Field and laboratory matrix replicates.

(g) QC and PT samples.

(h) Laboratory fortified blank and laboratory fortified sample matrix replicates.

- (i) Initial demonstration of method capability.
 - (j) Use of control charts for trend analysis.
 - (k) Qualitative identification/confirmation of contaminants.
- (9) Procedures for microbiology will include or reference the following items:
- (a) Positive and negative culture controls.
 - (b) Confirmation/verification of presumptive total coliform positive samples.
 - (c) Sterility controls.
 - (d) PT and QC samples.

(10) Procedures for chemistry and microbiology follow the quality control of the reference method or in its absence the laboratory will implement appropriate quality control procedures as outlined in the comparable EPA- or WQOC-approved method.

(11) Internal and External Assessments. Internal and external system and data quality assessments will adhere to the following requirements and schedule:

(a) Conduct internal assessments annually. Annual internal assessments will include all aspects of the laboratory's quality system, including the testing procedures to verify that laboratory operations comply with the requirements of this manual. The results of annual internal assessments will be documented.

(b) Conduct external assessments biennially (as deemed necessary by the WQOC Laboratory Authority). External assessments will be performed by individuals and organizations described in Appendix (L), subparagraphs 1.a.(1)(a) and 1.a.(1)(b).

(12) Preventive Maintenance Procedures and Schedules. Must describe location of instrument manuals, schedules and documentation of routine equipment maintenance.

(13) Corrective Action Contingencies

(a) Document actions taken for unacceptable results from analysis of PT samples and from internal QC checks.

(b) Name persons responsible for the various corrective actions.

(c) Describe documentation procedures for corrective actions and follow-up on corrective actions.

(14) Quality Management Record Keeping Procedures

- (a) Describe the documentation of those procedures.
- (b) List length of storage and media type (electronic or hard copy).
- (c) Describe security policy of electronic databases.
- (d) Describe software support for all electronic data.

APPENDIX M

THIRD-PARTY LABORATORY VERIFICATION PROCESS

1. Purpose. All Navy overseas drinking water (ODW) systems are required to use Defense Centers for Public Health (DCPH)-Aberdeen laboratories, laboratories accredited to International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 by an International Laboratory Accreditation Cooperation (ILAC) signatory, laboratories in the United States accredited by a state Safe Drinking Water Act (SDWA) laboratory certification program, or an approved on-site laboratory for their drinking water compliance sampling and analysis. The Water Quality Oversight Council (WQOC) Laboratory Authority must review scopes of accreditation and supporting documentation outlined in paragraph 2 for all DCPH-Aberdeen, ISO/IEC 17025 or State accredited laboratories requested for use by an installation or region and issue a WQOC Laboratory Authority verification memorandum if the laboratory is recommended for use. The WQOC Laboratory Authority also reserves the right to conduct a site visit at DCPH-Aberdeen or third-party laboratories, to confirm proper operations and quality control for laboratory methods and analytes for which they are being verified for use for the ODW program.

2. Third-Party Laboratory Verification Request Process

a. Prior to submitting a verification request to the WQOC Laboratory Authority for a DCPH-Aberdeen, ISO/IEC 17025 accredited laboratory, or a laboratory in the United States certified by a state SDWA certification program, the installation and region must verify the laboratory's credentials and provide the following information to the WQOC Laboratory Authority:

(1) The laboratory (and/or the subcontractor's) most current scope of accreditation or certificate to include the expiration date,

(2) A detailed list of analytes and method standard operating procedures (SOPs) for which the installation or region is seeking approval,

(3) The laboratory's limits of quantitation for each parameter, to ensure the laboratory can meet the Maximum Contaminant Levels (MCLs) and Detection Limits required by the host nation's Final Governing Standards (FGS) or reference (b), and

(4) The most current Proficiency Test results for all ODW parameters analyzed by the laboratory. The installation and region must only provide proficiency testing for ISO/IEC 17025 accredited laboratories. Laboratories accredited to State Certified Drinking Water Programs and/or the Department of Defense (DoD) Environmental Laboratory Accreditation Program are required to perform proficiency testing at minimum twice a year, per field of accreditation. Under these programs, the WQOC Laboratory Authority automatically accept the proficiency testing (PT) requirement as sufficiently met.

b. To submit a verification request, regions must fill out the WQOC Laboratory Authority Verification Request Protocol Form (Appendix C) and email the request to the points of contact identified within the form.

(1) If all requirements are met and approval is granted, the issued WQOC verification memorandum will be valid for a two-year period from the date of issuance for ISO/IEC 17025 accredited laboratories (see paragraph 3). If all requirements are met and approval is granted for state accredited laboratories and DCPH-Aberdeen laboratories, the verification approval will be valid until the date of the laboratory's current accreditation expiration. It is the responsibility of the installation and region to notify the WQOC for laboratory re-verification prior to the verification memorandum's expiration date.

(2) If all requirements are not met, and verification approval is not granted, the WQOC Laboratory Authority will provide feedback regarding the laboratory verification status, and the WQOC Laboratory Authority may request and perform additional quality assurance and quality control evaluations.

3. ISO/IEC 17025 Laboratory Accreditation Requirements

a. Region Water Quality Boards (RWQB), in coordination with Installation Water Quality Boards (IWQB), will issue a data call approximately 60 days prior to a WQOC laboratory verification memorandum expiration for any ISO/IEC 17025 accredited laboratory, requesting additional data and information from the laboratory. RWQBs and IWQBs are responsible for coordinating the data call with the laboratory and submitting the laboratory's response to the WQOC Laboratory Authority for review prior to the expiration of the laboratory's current WQOC laboratory verification memorandum, or as part of an initial request to the WQOC Laboratory Authority to review and verify a new ISO/IEC 17025 accredited laboratory. Data calls must include the following items at a minimum, and the RWQB/IWQB may request additional data as needed:

(1) Changes in personnel (including a copy of the current organization chart and resume(s) and qualifications of new personnel) in the last year.

(2) A copy of any documents (including Quality Manual, quality, and technical SOPs) that have been changed in the last year.

(3) Internal audits performed (including any corrective action and preventive action documentation resulting from an audit) in the last year.

(4) Management reviews performed (including any corrective action and preventive action documentation resulting from reviews) in the last year.

(5) A list of any complaints received in the last year.

(6) Proficiency testing results for all ODW parameters the laboratory is analyzing.

(7) Current ISO/IEC 17025 scope of accreditation.

b. To effectively implement enhanced review and oversight of ISO/IEC 17025 accredited laboratories, the WQOC Chair will issue a new WQOC laboratory verification memorandum for an ISO/IEC 17025 accredited laboratory with an expiration date of two years from the date of signature or the expiration date of the accreditation, whichever comes first.

**APPENDIX N
OPERATOR CERTIFICATION PROCESS**

Operator Certification Process
First Step
<ul style="list-style-type: none"> • Installation <ul style="list-style-type: none"> ○ Identifies candidates for Operator in Responsible Charge (ORC), Assistant Operator in Responsible Charge (AORC), and operators (if applicable) • Applicants <ul style="list-style-type: none"> ○ Submits required paperwork and signed application, as outlined in the Exam and Certification Application for Drinking Water System Operator, to the installation Public Works Officer (PWO) • Installation PWO <ul style="list-style-type: none"> ○ Reviews and signs application • Installation <ul style="list-style-type: none"> ○ In conjunction with the Installation Water Quality Board (IWQB), reviews, endorses, and submits the Exam and Certification Application for Drinking Water System Operator to the Region Water Quality Board (RWQB) or RWQB Board designee
Second Step
<ul style="list-style-type: none"> • RWQB <ul style="list-style-type: none"> ○ Reviews the application to ensure training, experience, and education requirements are met ○ Forwards the application to the Water Quality Oversight Council (WQOC) Naval Facilities Engineering Command (NAVFAC) Headquarters (HQ) Public Works (PW) Representative • WQOC NAVFAC HQ Public Works Representative <ul style="list-style-type: none"> ○ Forwards the application to the Navy Operator Certification Authority (NOCA) Board • NOCA Board <ul style="list-style-type: none"> ○ Reviews application and provides recommendation to the RWQB
Third Step
<ul style="list-style-type: none"> • RWQB <ul style="list-style-type: none"> ○ Notifies the operator candidate of the NOCA Board recommendation ○ Issues operator certificate, where appropriate
Fourth Step
<ul style="list-style-type: none"> • Applicants <ul style="list-style-type: none"> ○ Completes required professional development courses and provides proof to the IWQB (refer to Chapter 11) ○ Monitors expiration date of certification

Operator Certification Process	
<ul style="list-style-type: none">○ Submits required renewal package (i.e., signed Certification Renewal form, along with proof of required professional development course completion) to the installation PWO 90 days prior to certification expiration● IWQB<ul style="list-style-type: none">○ Monitors the expiration date of the current drinking water operator certifications and notifies drinking water operators of impending expiration○ Maintains proof of drinking water operator professional development course completion● Installation PWO<ul style="list-style-type: none">○ Reviews and signs renewal application● Installation<ul style="list-style-type: none">○ In conjunction with the IWQB, reviews, endorses, and submits the renewal package to the RWQB 60 days prior to certification expiration● RWQB<ul style="list-style-type: none">○ Reviews the renewal package to ensure training, experience, education, and professional development requirements are met○ Forwards the renewal package to the WQOC NAVFAC HQ PW representative● WQOC NAVFAC HQ PW Representative<ul style="list-style-type: none">○ Forwards the renewal package to the NOCA Board● NOCA Board<ul style="list-style-type: none">○ Reviews renewal package and provides recommendation to the RWQB	
Fifth Step	
<ul style="list-style-type: none">● RWQB<ul style="list-style-type: none">○ Notifies the operator of the NOCA Board recommendation○ Issues operator renewal certificate where appropriate	

**APPENDIX O
OPERATOR EDUCATION AND EXPERIENCE REQUIREMENTS**

Operator Education and Experience Requirements		
Education	Experience	Exam
Treatment Level I		
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	Three months of acceptable full time (40 hours/week) experience (i.e., 480 hours) at a water treatment system; AND Be an existing employee at the treatment system	Satisfactorily passed the Level I treatment exam provided by the Navy Operator Certification Authority (NOCA) Board or State/Water Professionals International (WPI) exam equivalent
High school diploma, General Education Development (GED) credential, or equivalent	One year of acceptable full time (40 hours/week) experience at a water treatment system (i.e., 2080 hours); AND Be an existing employee at the treatment system	
Treatment Level II		
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	One year of acceptable full time (40 hours/week) experience (i.e., 2080 hours) at a water treatment system; AND Be an existing employee at the treatment system	Satisfactorily passed the Level II treatment exam provided by the NOCA Board or State/WPI exam equivalent
Be a high school graduate or equivalent	Three years of acceptable full time (40 hours/week) experience (i.e., 6240 hours) at a water treatment system; AND Be an existing employee at the treatment system	
Treatment Level III		
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	One year of acceptable full time (40 hours/week) experience (i.e., 2080 hours) at a water treatment system; AND Be an existing employee at the treatment system	Satisfactorily passed the Level III treatment exam provided by the NOCA Board or State/WPI exam equivalent
Be a high school graduate or equivalent; AND 900 contact hours of post-high school education relevant to drinking water treatment and distribution	Four years of acceptable full time (40 hours/week) experience (i.e., 8320 hours) at a water treatment system; AND Be an existing employee at the treatment system	
Be a high school graduate or equivalent	Ten years of acceptable full time (40 hours/week) experience at a water treatment system; AND Be an existing employee at the treatment system	
Distribution Level I		

Operator Education and Experience Requirements		
Education	Experience	Exam
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	Three months of acceptable full time (40 hours/week) experience (i.e., 480 hours) at a water distribution system; AND Be an existing employee at the distribution system	Satisfactorily passed the Level I distribution exam provided by the NOCA Board or State/WPI exam equivalent
High school diploma, GED, or equivalent	One year of acceptable full time (40 hours/week) experience (i.e., 2080 hours) at a water distribution system; AND Be an existing employee at the distribution system	
Distribution Level II		
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	One year of acceptable full time (40 hours/week) experience (i.e., 2080 hours) at a water distribution system; AND Be an existing employee at the distribution system	Satisfactorily passed the Level II distribution exam provided by the NOCA Board or State/WPI exam equivalent
Be a high school graduate or equivalent	Three years of acceptable full time (40 hours/week) experience (i.e., 6240 hours) at a water distribution system; AND Be an existing employee at the distribution system	
Distribution Level III		
College graduate with a bachelor's degree or equivalent in the physical, engineering (such as civil, chemical or environmental), or natural sciences; OR Graduate of a two-year technical program with a diploma in water technology	One year of acceptable full time (40 hours/week) experience (i.e., 2080 hours) at a water distribution system; AND Be an existing employee at the treatment system	Satisfactorily passed the Level III distribution exam provided by the NOCA Board or State/WPI exam equivalent
Be a high school graduate or equivalent; AND 900 contact hours of post-high school education relevant to drinking water treatment and distribution	Four years of acceptable full time (40 hours/week) experience (i.e., 8320 hours) at a water distribution system; AND Be an existing employee at the treatment system	
Be a high school graduate or equivalent	Ten years of acceptable full time (40 hours/week) experience (i.e., 20,800 hours) at a water distribution system; AND Be an existing employee at the treatment system	

APPENDIX P
ODW ON-SITE COMPLIANCE LABORATORY APPROVAL FRAMEWORK

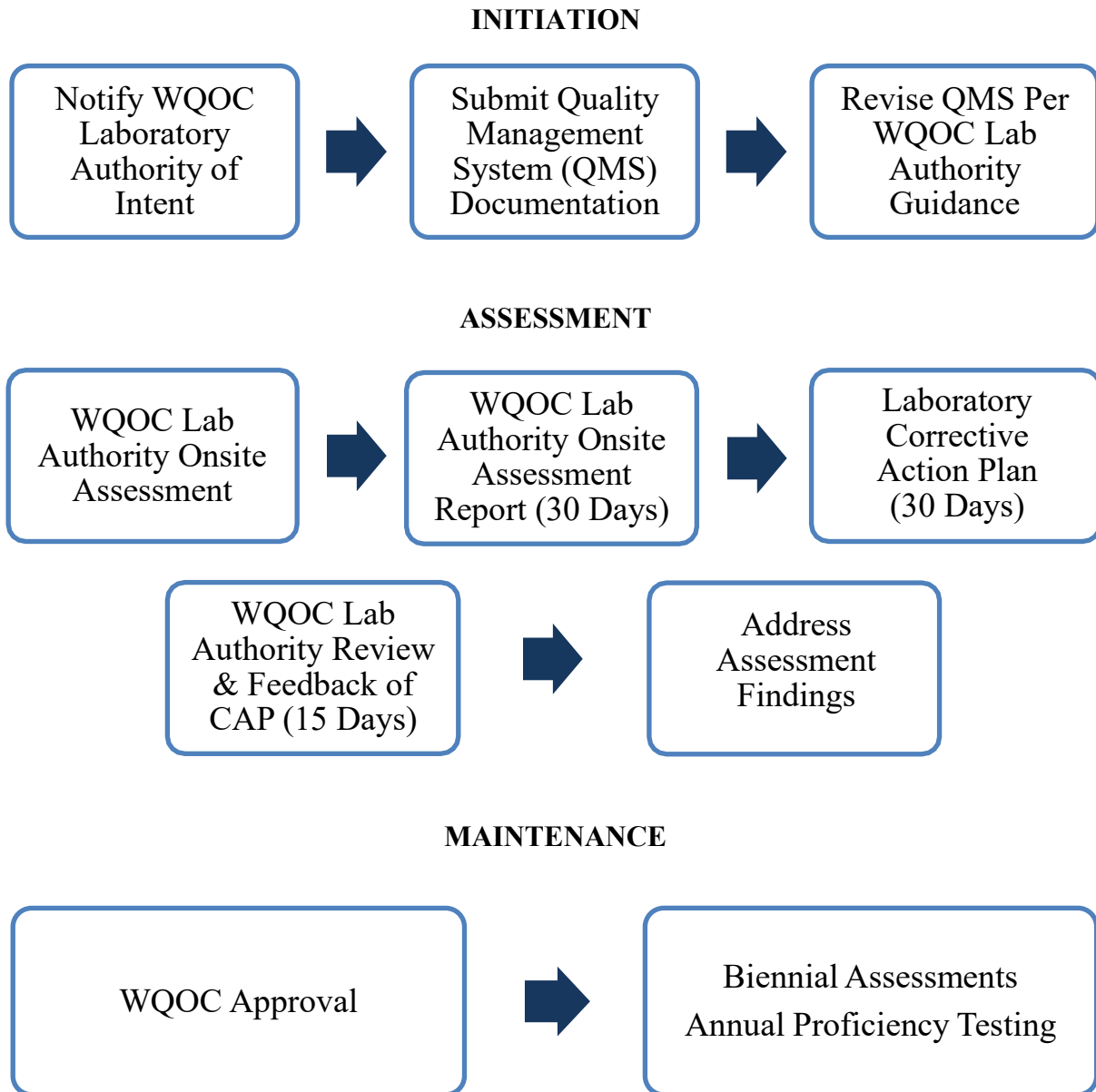


Figure P-1. Laboratory Approval Process

APPENDIX Q
ON-SITE LABORATORY ASSESSMENT EXAMPLE REQUEST FOR INFORMATION

1. Standard Operating Procedures on Personnel Training
2. Personnel Training Records – including formal education records
3. Resume for Laboratory Director
4. Resume for Quality Manager
5. Ethics Policy
6. Proficiency Testing Sample Results
7. Quality Assurance Manual/Plan
8. Laboratory Organization Chart
9. List of Key Individuals Responsible for Testing
10. Demonstrations of Capability Records (Training)
11. Standard Operating Procedures
12. Chain of Custody
13. Control Charts
14. Internal Audits (Last Two Inspections)
15. Corrective Action Procedure
16. Quality Management Record Keeping Procedures
17. Equipment Maintenance Records
18. Analytes/parameters and methods requested for approval

APPENDIX R DEFINITIONS

These terms and their definitions, listed in alphabetical order, will aid in interpreting this manual, and in the continued administration of the Navy Overseas Drinking Water (ODW) Program Ashore.

Acceptable Experience. Assistant Operator in Responsible Charge (AORC) and Operator in Responsible Charge (ORC) job-related responsibilities will consist of performance of operational duties for Navy drinking water systems. Experience must be in drinking water distribution or treatment system operation, bench laboratories, water pumping stations, water system design and engineering, surface water facilities, or wells. All related knowledge and experience must be based on the use of the principles, and application of physics, chemistry and bacteriology as they relate to water purification; ability to read, understand, and record data from gauges, scales, and meters; and ability to make routine laboratory and field tests for control of drinking water treatment plant operations. This experience must be based on the use of mathematics, equipment, materials, maintenance, installation and repair techniques, cross-connection control, and other skills necessary for maintaining and operating a water system; ability to understand and carry out oral and written instructions; mechanical aptitude; alertness and dependability; and physical condition commensurate with the demands of the position.

Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Antibacterial Soap. Any cleaning product to which active antimicrobial ingredients have been added. These chemicals kill bacteria and microbes but are not proven more effective at deactivating viruses than any other kind of soap or detergent.

Approved Certificate to Operate Agreement. Pertains to the sanitary survey-identified deficiencies and corrective actions recommended and approved by the Water Quality Oversight Council (WQOC) under terms of the Plan of Action and Milestones (POA&M) negotiated with and endorsed by the Region Commander (REGCOM).

Assistant Operator in Responsible Charge (AORC). An AORC is an individual that meets all established criteria designated by the Navy to be responsible for the operation and maintenance of a particular system in the temporary absence of the ORC.

Available. Available means that the ORC or the designated AORC is either on call or on duty. Either an ORC or AORC must be on call or on duty 24/7.

Bench Laboratory. A small, limited-capability laboratory generally co-located with a water plant that is used to conduct water quality testing that supports real-time adjustments to operations.

Typical bench lab testing parameters include pH, conductivity, alkalinity, chlorine, and turbidity. The bench laboratory is not assessed by the WQOC Laboratory Authority.

Bulk Water. A volume of water intended for fir for human consumption (FFHC) uses which is stored and transported in a container larger than five gallons.

Ceded. Ceded property refers to land and improvements for which exclusive right of use (in accordance with applicable laws) is granted to the U.S. by international agreement.

Certified Operator. A certified operator is any holder of a certificate issued per the provisions of this program.

Coating. A thin layer of material such as paint, epoxy, zinc galvanization, or other material usually applied by spraying or in liquid form to coat internal surfaces of pipes, fittings or fixtures.

Compliance Order. An order issued by the Chair of the WQOC to an installation Commanding Officer (CO) in response to a violation of a Navy ODW compliance requirement. A WQOC compliance order requires the violator to prepare a compliance plan and to implement it according to a schedule set by the WQOC.

Contact Hours. Contact hours are each hour of classroom training instruction.

Containers. Holding tanks suitable for FFHC drinking water. Standard equipment includes but is not limited to: five-gallon water dispenser container, five-gallon water can, bulk 200 to 400-gallon water trailer (“water buffalos”), bulk 800-gallon water pod system, and bulk 2,000 to 5,000-gallon tank trucks. Refer to Appendix H for material requirements.

Drinking Water Supply Connection for Hauled Drinking Water (“Filling Station”). The connection used to fill water containers will be dedicated for that purpose. It should be managed under the direction of the ORC. The connection should be in a secure area, and should include a logbook recording for each water transfer date, time, operator, vessel type, and pre- and post-water meter readings at a minimum. The connection point should include at a minimum, a water meter, an approved reduced-pressure principle backflow prevention assembly, a hand (or optionally motorized) operating valve, and finally a removal cap to cover the connection when not in use.

Executive Agent (EA). In this manual refers to the Navy EA for Drinking Water Ashore (Commander, Navy Installations Command (CNIC)).

Exemption. Permanent relief from a requirement, which must be obtained through an established process.

Final Governing Standards (FGS). A country specific value used to determine if a drinking water parameter is within compliance. The FGS may be more protective than a maximum contaminant level (MCL). The FGSs ensure consistent application of environmental standards for all installations operated by Department of Defense (DoD) Components within a Host National.

Fit for Human Consumption (FFHC). Drinking water that is fit for drinking, bathing, showering, cooking, dishwashing, and maintaining oral hygiene.

Ground Water Under the Direct Influence of Surface Water (GWUDI). Any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

Holding Time. The maximum time that may elapse from the time of sample collection to the time of preparation or analysis, or from preparation to analysis, as appropriate.

Horizontal Well. A well with collection laterals within 100 feet of surface water.

Installation Compliance Laboratory. An on-site laboratory facility used to analyze drinking water samples for compliance with Chapter 2 of this manual.

Installation Property. The primary land, or land interest, of an installation and other secondary properties that may not be contingent with the primary location but are considered to be part of the installation by the installation CO.

Installation Commanding Officer (CO). Denotes the Commander of a CNIC Installation, abbreviated as Installation CO. As used in this manual, an Installation CO may also include the Officer in Charge (OIC) of an installation who reports to an Installation CO or REGCOM.

Installation Water Quality Board (IWQB). The IWQB will be chaired by the Installation CO (not a designee). Standing members are the Public Works Officer (PWO), the Installation Environmental Program Manager (lead Point of Contact (POC)) and all applicable representatives from the installation Public Works Department (PWD), the ORC for Treatment and Distribution, a representative from local Preventative Medicine Authority (PMA) and the Installation Public Affairs Officer (PAO). These are required members only; other ad hoc members may be added as needed. The IWQB manages the installation drinking water program and reports to the RWQB for all drinking water matters. The standing members will be documented and submitted to the WQOC via the RWQB.

Instrumentality. An agency or means through which the required functions of a larger, controlling agency or means are carried out.

Limit of Quantitation (LOQ). The smallest concentration that produces a quantitative result with known and recorded precision and bias.

Liner. A rigid lining such as a plastic or copper sleeve that is sealed with a permanent barrier to exclude lead-bearing surfaces from water contact; and of sufficient thickness and having physical properties necessary to prevent erosion and cracking for the expected useful life of the product.

Maximum Contaminant Level (MCL). The maximum allowable concentration of a contaminant that is allowed to be present in drinking water by the applicable requirement.

Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. Maximum residual disinfectant level goals do not reflect the benefits of the use of disinfectants to control microbial contaminants, or account for the systems actions to reduce the contamination in question and restore safe drinking water.

Medical Surveillance Data. Water quality data from a sample taken by the PMA per reference (m) Chapter 5, Appendix A.

Method Detection Limit (MDL). The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

National Stock Number (NSN). Numeric code used to identify and manage standardized items of supply.

Navy Lead Executive Command. The Commander specifically designated to execute the responsibilities for Navy ODW Ashore Program.

Navy Operator Certification Authority (NOCA) Board. The NOCA Board is comprised of Navy drinking water subject-matter experts that operates under the direction of the WQOC.

On Call. On call staff respond, upon notification, to a work-related emergency or situation when off duty. The ORC or AORC must be available to respond immediately via telephone and to be on site within an installation predefined number of minutes after notification.

On Duty. On duty is when the ORC or AORC is physically located at the Navy installation where their overseas drinking water systems are located during each operating shift, making process control and system integrity decisions about water quality or quantity that affect public health.

Operational Control. Each water system must have at least one ORC and one AORC assigned. The installation must provide 24/7 coverage of their water systems which include after hours,

weekends and holidays when the treatment or distribution systems are unmanned. This means either the ORC or AORC must be available at all times and must directly operate, maintain, repair and manage the drinking water treatment plants and distribution systems to which they are assigned. In addition, the ORC/AORC must be able to direct staff to perform drinking water functions and have ready access to the PWO/Deputy PWO to facilitate drinking water improvements. For non-Public Works ORC/AORCs, the designated ORC/AORCs must have jurisdiction to work at the plant to which they are assigned and must be able to cross administrative boundaries to directly operate and manage the system. This chain of command can be satisfied through a memorandum or organizational chart.

Operator. An all-encompassing term to denote personnel who work in and assist with the operation of a drinking water treatment system or drinking water distribution system. ORCs and AORCs are special categories of operators who supervise the work of the other operators. Personnel working strictly in the laboratory, in an administrative role (e.g., Drinking Water Program Manager, Utilities Business Line Leader), or as a base operating support (BOS) Contractor Supervisor are not considered operators. Refer to the ODW Operator Definition and Guidance (Appendix C for more direction).

Operator in Responsible Charge (ORC). An individual that meets all established criteria designated by the Navy to be responsible for supervising or directing the operation or maintenance of a particular water treatment plant or water distribution system and makes process control and system integrity decisions.

Operator in Training (OIT). An individual who has passed a T1 or D1 exam and is working under the direct supervision of an ORC/AORC to obtain required experience for Full certification.

Overseas Installation. A U.S. Navy installation on the "CNIC Installations and Special Areas" list or an installation sponsored by a non-CNIC budget submitting office that is outside of the U.S. and its territories. Overseas Installation does not include contingency locations, per reference (g).

Overseas Drinking Water System. A system for the provision to personnel on overseas Navy installations of drinking water for human consumption (e.g., oral hygiene, ingestion, showering, washing, food preparation) through pipes or other constructed conveyances, including any source, collection, treatment, storage, and distribution facilities, from the source to the point of consumption. An ODW System may also include hauled water (as defined in Chapter 3) as an alternative distribution method as approved by the RWQB, and in consultation with the WQOC.

Public Notification. An advisory requirement for a water system purveyor to distribute to affected consumers when the drinking water system has violated MCLs or other regulations. This notice advises the consumer what precautions, if any, they should take to protect their health.

Preventive Medicine Authority (PMA). At installation level is generally the Navy Environmental Health Officer or Navy Preventive Medicine Technician when an Environmental Health Officer is not assigned.

Primacy. Primary enforcement authority for interpretation and enforcement of Navy ODW policy.

Professional Development Hours. Same as contact hours.

Proficiency Testing (PT). A means of evaluating a laboratory's performance under controlled conditions relative to a given set of criteria through analysis of unknown samples provided by an external source.

Quality Assurance (QA). An integrated system of management activities involving planning, implementation, assessment, reporting and quality improvement to ensure that a process, item or service is of the type and quality needed and expected by the client. QA is typically applied by managers or technical personnel assigned to a specific oversight role. Example QA activities include technical and management assessments of field and analytical operations.

Quality Assurance (QA) Manual. A document stating the management policies, objectives, principles, organizational structure and authority, responsibilities, accountability, and implementation of an agency, organization, or laboratory, to ensure the quality of its product and the utility of its product to its users.

Quality Control (QC). A structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of a laboratory for ensuring quality in its work processes, products (items), and services. The quality management system provides the framework for planning, implementing, and assessing work performed by the laboratory and for carrying out required QA and QC activities.

Quality Management System (QMS). Overall quality system for laboratory management that covers, at minimum, all laboratory activities including sampling, analytical methods, QC checks, instrument operation, data generation, data validation and verification, corrective action procedures, and recordkeeping.

Reciprocity. Pending review, approval, and recommendation of the NOCA Board, the RWQB may issue certification without exam and on a case-by-case basis to Navy installation drinking water system operators. Operators must be currently certified at a comparable system classification level, have passed an adequate written exam, and hold a valid certificate in another state, territory, or possession of the U.S. or any country, provided the requirements for certification of operators under which the certification was issued do not conflict with and are

equivalent to the Navy ORC and AORC Operator Training & Certification (OT&C) program requirements.

Region Facilities and Environmental (N4). Director of Facilities and Environmental Programs for a Navy Region.

Region Water Quality Board (RWQB). The REGCOM (not a designee) will chair the RWQB. Standing members are the Region Facilities and Environmental (N4), Environmental (N45), representatives from the Region N45, Naval Facilities Engineering Command (NAVFAC) Facilities Engineering Command (FEC) Public Works Utilities, Navy Region PMA, Region PAO, and Region Counsel. These are required members only; other ad hoc members may be added as needed. The RWQB oversees installation drinking water programs and ensures compliance and equivalency but does not have program primacy. The RWQB reports to the WQOC for all drinking water matters.

Requirements Plan of Action and Milestones (POA&M). A list of all Navy ODW requirements needed to obtain compliance with ODW program policies.

Soap Solution. A solution made from liquid approved dishwashing soap (NSN 7930-00-899-9534). A soap solution is prepared by adding one part of liquid dishwashing soap to 500 parts of water.

Skin Sanitizers. Skin sanitizers are primarily composed of alcohol. The alcohol acts as an antimicrobial agent and evaporates quickly so that a residue is not left on the skin. Sanitizers are not an alternative for proper handwashing. They can be used as a secondary means of sanitization after proper handwashing.

Spring. A spring is defined as a natural water body formed when the side of a hill, a valley bottom or other excavation intersects a flowing body of ground water at or below the local water table, below which the subsurface material is saturated with water.

Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.

Variance. Allows for temporary ODW policy nonconformity on the condition that drinking water quality is still protective of public health and maintains compliance with the Overseas Baseline Guidance Document and host nation Final Governing Standards. Variances are

approved by the Navy EA and cannot be granted for maximum contaminant level or treatment technique requirements.

Water Quality Oversight Council (WQOC). The Navy WQOC is the overall governing body and reports on a regular basis to the Navy EA, CNIC. The CNIC Director of Facilities and Environmental permanently chairs the WQOC. Standing members include representatives from

CNIC and NAVFAC Headquarters (HQ) Environmental and Facilities/Public Works, Navy Bureau of Medicine (BUMED) HQ, Navy and Marine Corps Force Health Protection Command (NMCFHPC), NAVFAC Atlantic and Pacific, Naval Sea Systems Command (NAVSEA) Laboratory Quality and Accreditation Office (LQAO), and NAVFAC Engineering and Expeditionary Warfare Center (EXWC). The WQOC convenes on a regular basis, determines overseas drinking water overarching policies, makes associated decisions and actions, and enforces policy requirements under the direction of the Navy EA for ODW ashore.

WQOC Laboratory Authority. The Laboratory Authority is a subgroup advising the WQOC. The Laboratory Authority ensures that overseas laboratory quality assurance requirements are equivalent to or exceed U.S. requirements, such that overseas installations are assured they are complying with water quality requirements. Standing membership includes representatives from CNIC and NAVSEA LQAO.