



NAVY OVERSEAS DRINKING WATER PROGRAM ASHORE MANUAL



CNIC M-5090.1A
15 Mar 2021

This Page Intentionally Left Blank

FOREWORD

This manual implements the policy set forth in Commander, Navy Installations Command Instruction (CNICINST) 5090.1B, *Navy Overseas Drinking Water Program Ashore*. It is issued under the authority of Chief of Naval Operations Instruction (OPNAVINST) 5090.1E, *Environmental Readiness Program*, 3 September 2019.

This manual contains Navy policy guidance for drinking water quality compliance. It discusses requirements, delineates responsibilities and issues policy guidance for the management of drinking water quality at U.S. Navy installations outside the jurisdiction of the U.S. Environmental Protection Agency.

This manual is effective immediately, and it is mandatory and applicable to all ashore Navy commands.

This manual is cleared for public release and is available electronically only via Gateway 2.0 website, <https://g2.cnlic.navy.mil/CC/Documents/Forms/Directives%20Only.aspx>.



Y. B. LINDSEY

CNIC M-5090.1A
15 Mar 2021

This Page Intentionally Left Blank

TABLE OF CONTENTS

Chapter 1	PROGRAM MANAGEMENT AND OVERSIGHT	
1.	Scope	1-1
2.	Applicability	1-1
3.	Organization	1-2
4.	Responsibilities	1-4
Chapter 2	DRINKING WATER QUALITY STANDARDS	
1.	Scope	2-1
2.	Requirements	2-1
Chapter 3	HAULED DRINKING WATER	
1.	General	3-1
2.	Responsibilities	3-2
3.	Source	3-2
4.	Notification and Approval	3-2
5.	Monitoring Requirements	3-3
6.	Recordkeeping	3-4
Chapter 4	LABORATORIES	
1.	Applicability	4-1
2.	Laboratory Accreditation and Selection	4-1
3.	Enforcement Structure and Responsibilities	4-2
4.	Use of U.S. Army PHC or Third-Party Accredited Laboratories	4-4
5.	Installation Bench Laboratories	4-7
6.	Records Management	4-7
Chapter 5	REPORTING REQUIREMENTS	
1.	General	5-1
2.	Reporting Hierarchy	5-1
3.	Reporting to Evaluate Compliance	5-1
4.	Public Notification and Drinking Water Advisories	5-6
Chapter 6	ENFORCEMENT	
1.	General	6-1
2.	Compliance Evaluation	6-1
3.	Compliance Order	6-1
4.	Variances	6-1
Chapter 7	DETERMINATION OF FIT FOR HUMAN CONSUMPTION	
1.	General	7-1
2.	Procedure	7-1

Chapter 8	SANITARY SURVEY EXECUTION	
1.	General	8-1
2.	Sanitary Surveys	8-1
3.	Deficiencies	8-6
Chapter 9	CERTIFICATES TO CONSTRUCT AND OPERATE	
1.	General	9-1
2.	Certificate to Construct	9-1
3.	Certificate to Operate Program	9-5
Chapter 10	OPERATOR TRAINING AND CERTIFICATION PROGRAM	
1.	General	10-1
2.	Applicability	10-1
3.	Program Execution	10-2
4.	Responsibilities	10-2
5.	Operator Certification	10-3
6.	Facilities Levels of Certification	10-10
7.	Expected Range of Knowledge	10-11
Chapter 11	TRAINING	
1.	General	11-1
2.	Installation Commanding Officers, Executive Officers and Public Works Officers	11-1
3.	Drinking Water Program Managers	11-1
4.	Operators	11-1
5.	Regional and Installation Preventive Medicine Authority	11-1
6.	Records	11-1
Chapter 12	RECORDS MANAGEMENT	
1.	General	12-1
2.	Requirements	12-1
3.	Records	12-1

APPENDICES

A	REFERENCES	A-1
B	GROUND WATER UNDER DIRECT INFLUENCE OF SURFACE WATER PRELIMINARY ASSESSMENT	B-1
C	SURFACE WATER TREATMENT COMPLIANCE ASSESSMENT TOOL	C-1
D	SURFACE WATER TREATMENT GUIDANCE – FILTRATION AVOIDANCE CRITERIA	D-1
	Table D-1 Sampling Frequency Requirements for Water Quality Monitoring	D-2
E	PROCEDURE FOR SELECTION OF TREATMENT CHEMICALS	E-1
	Figure E-1 Procedure for Treatment Chemical Selection	E-1
F	HAULED WATER HEALTH AND SAFETY REQUIREMENTS	F-1
G	HAULED WATER EQUIPMENT, SUPPLIES, MATERIALS AND TOOLS REQUIRED	G-1
H	HAULED WATER PROCEDURES	H-1
I	CHLORINE DOSE CALCULATION AND MEASUREMENTS	I-1
	Table I-1 Sodium Hypochlorite 5% (unscented)	I-1
	Table I-2 Calcium Hypochlorite (HTH)	I-1
J	OVERSEAS DRINKING WATER LABORATORY DECISION TREE	I-1
	Figure J-1 Laboratory Decision Tree	J-1
K	OVERSEAS DRINKING WATER LABORATORY APPROVAL PROCESS	K-1
L	STAGES OF THE ODW LABORATORY APPROVAL PROCESS	L-1
	Figure L-1 Laboratory Approval Process	L-1

M	OPERATOR IN RESPONSIBLE CHARGE AND ASSISTANT OPERATOR IN RESPONSIBLE CHARGE CERTIFICATION PROCESS	M-1
N	OPERATOR IN RESPONSIBLE CHARGE AND ASSISTANT OPERATOR IN RESPONSIBLE CHARGE EDUCATION AND EXPERIENCE REQUIREMENTS	N-1
O	LIST OF FORMS	O-1
P	DEFINITIONS	P-1

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 U.S. Navy enduring installations and installation properties outside the United States, its territories and its possessions. These enduring locations and their properties are also termed "overseas installations." These include locations under the command of Naval Sea Systems Command (NAVSEA) and the Navy Bureau of Medicine and Surgery (BUMED). 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 that the Installation commanding officer (CO) considers to be a part of the installation, or properties provided by other type of instrumentalities.

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 (e.g., DoD dependent schools

located off Navy property or not under the control of the installation CO). 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 installations).

c. The Navy ODW Program treats all drinking water systems as public water systems (PWS), regardless of their population size. 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 Business Lines,

(c) BUMED,

(d) Navy and Marine Corps Public Health Center (NMCPHC),

(e) NAVFAC Atlantic and Pacific Environmental and Public Works,

(f) NAVFAC Engineering and Expeditionary Warfare Center (EXWC), and

(g) NAVSEA 04X6 Laboratory Quality and Accreditation Office

(2) 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 facilities. This oversight will ensure protection of public health and Navy ODW systems are properly operated,

maintained and managed. Membership will be nominated by NAVFAC HQ Public Works or CNIC Region Engineers, and selected by the WQOC Chair.

(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, NAVFAC, BUMED and NAVSEA's Laboratory Quality and Accreditation Office (LQAO). Membership will be nominated by each respective command and selected by the WQOC Chair.

(c) Technical Advisory Board. The Technical Advisory Board (TAB) is a subgroup advising the WQOC. The TAB will serve as the technical authority for the Navy ODW Program for matters of infrastructure, planning, design, construction, operations and related regulatory matters. Membership will be nominated by CNIC Region Engineers and selected by the WQOC Chair.

b. Regional Water Quality Board

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

- (a) Region N4,
- (b) Region Environmental (N45),
- (c) Region Facilities Engineering Command Public Works (Utilities and Facilities) and Environmental Business Lines,
- (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 minimum:

- (a) Installation Public Works Officer,
- (b) Installation Environmental Program Director,
- (c) Installation Public Works Department Utilities and Facilities Representatives,
- (d) Installation Preventive Medicine Authority
- (e) Operator in Responsible Charge for Treatment and Distribution, and
- (f) Installation Public Affairs Officer.

(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.

(c) Submit an Annual Drinking Water Quality Report to the Vice Chief of Naval Operations (VCNO) via the Office of the Chief of Naval Operations, Fleet Readiness and Logistics (OPNAV N4), as defined in reference (a), on the status of drinking water quality for the previous fiscal year, to include non-CNIC installations and BSOs.

(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 Navy 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 Annual Drinking Water Quality Report to VCNO.

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

(8) Issue Certificates to Operate 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 Department of Defense (DoD) guidance, or that appear prohibitively costly or otherwise impractical to implement.

(11) Evaluate installation compliance with this manual through internal annual environmental management system and environmental quality assessment audits, and external triennial sanitary surveys.

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 Navy 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 Annual Drinking Water Quality Report to the VCNO.

(h) Demonstrate progress towards compliance with this manual by submitting quarterly updates to the RWQB via the installation Requirements POA&M and the monthly ODW Metrics Scorecard.

(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, 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 the 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 the customers of your drinking water systems.

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

(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 installation medical authorities, per references (a) and (c).

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 Business Line Coordinator (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.

(c) Ensure coordination of drinking water program issues with Region Medical authorities, per references (a) and (c).

e. BUMED and NMCPHC will:

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

(2) Provide prompt public health assessments in the event of an 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) 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, CNIC, hereby references the National Primary Drinking Water Regulations (reference (e)) promulgated under the Safe Drinking Water Act 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 (f), as amended by reference (g), 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 FGS and other applicable requirements, such as reference (b), international agreements, in-theater commander and DoD directives, and service policies as applicable. If an FGS or other requirement is the same as a U.S. standard, only one test is required; that is, one sample can report the contaminant level for one or more requirements. The testing must comply with both of the standards' testing methodology requirements.

b. This chapter references several subparts of reference (e), as outlined in reference (g), as the U.S. drinking water standards applicable to U.S. Navy installations overseas and all ODW systems on overseas Navy installations. The RWQB will coordinate and seek input and approval from the 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 (e), per reference (g), that are referenced in this chapter; the direction provided therein should be referenced except where further direction is provided. Reference (e) also includes ground water under the direct influence (GWUDI) of surface water determination as part of the Surface Water Treatment Rule. Guidance on GWUDI screening assessments to determine applicability of surface water treatment requirements for Navy ODW systems is in Appendix B.

d. The incorporation by reference of the following U.S. regulations under Title 40 of the Code of Federal Regulations (CFR) is 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
- § 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
- § 141.400 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?

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

(2) 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?

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

(2) 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?

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

(2) 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?

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

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

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

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

(2) 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 O)

§ 141.602 System specific studies

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

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

§ 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

§ 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 TTHM and 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

(1) The WQOC authorized a variance for the extension of the 96-hour Cryptosporidium and Giardia sample holding time to no longer than seven days—based on available scientific data on the effects of time and temperature on Cryptosporidium and Giardia in water.

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

(3) Installations will coordinate the management of field filtering and shipping Cryptosporidium and Giardia 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

(1) 40 CFR 141.852(5)(b), Laboratory Certification, does not apply to the Navy ODW Program.

(2) 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

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

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

(3) Link to Level 1 and Level 2 Assessments Forms is provided in Appendix O.

§ 141.860 Violations

§ 141.861 Reporting and recordkeeping

e. Compliance with Surface Water Treatment Requirements

(1) 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. Subparagraphs 2.e.(2)(a) through 2.e.(2)(c) include consideration of these situations in order to provide alternate compliance requirements that are achievable under Navy control, yet provide a similar level of protection of human health. This Navy guidance does not obviate the requirement to comply with DoD drinking water policy, as found in reference (b) and in DoD country-specific Environmental FGSs.

(2) Overseas installations purchasing or otherwise using drinking water from a surface water source (or GWUDI or seawater) will comply with surface water treatment (SWT) requirements listed under paragraph 2.d. Compliance may be achieved in the traditional manner by operating a fully compliant treatment system along with required documentation, but in consideration of situations noted in subparagraph 2.e.(1), compliance may also be achieved following one of the courses of action noted in subparagraphs 2.e.(2)(a) through 2.e.(2)(c). All courses of action require WQOC concurrence.

(a) IWQBs may obtain information that documents full compliance with requirements by the drinking water purveyor, subject to WQOC concurrence. This compliance documentation must be updated every three years in advance of WQOC Sanitary Surveys.

(b) IWQBs, with RWQB and WQOC participation, may conduct on-site engineering evaluations of drinking water purveyor treatment plants that document full compliance, subject to WQOC concurrence. These evaluations must be reviewed and confirmed during the triennial WQOC Sanitary Survey.

(c) In situations where overseas installations believe full compliance with the SWT requirements noted above in subparagraph 2.e.(2) is not possible, cannot be demonstrated or is not in the best interest of the Navy, alternate courses of action, as detailed in 2.e.(2)(c)1 and 2.e.(2)(c)2, can be used to achieve compliance with Navy guidance, subject to review and approval from the WQOC. Compliance with 2.e.(2)(c)1 and 2.e.(2)(c)2 constitutes SWT compliance for Navy ODW policy purposes.

1. IWQBs may use the decision processes in Appendix C to arrive at alternate courses of action, as approved by the WQOC, to achieve compliance. IWQBs may also consider filtration avoidance criteria found in Appendix D for development of a plan for SWT compliance.

2. If unable to implement any of the alternative compliance methodologies found in Appendix C due to extenuating circumstances, the IWQB and RWQB will consult with the WQOC on a case-by-case basis to determine the course of action.

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

(1) References (d) and (h) require that chemicals used in Navy water treatment systems meet the standard in reference (i). The requirement applies to any chemical that may come in contact with drinking water, including chemicals used for cleaning and flushing. If NSF/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 an annual 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 the public health risk assessment associated with the use of the chemical. A list of certified chemicals will 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 E 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 the installation is unable to obtain certified chemicals, the following alternatives will be used.

(a) If the IWQB identifies water treatment chemicals that are certified per references (j) and (k), or certified per host nation legislation as being equivalent to chemicals certified to comply with the standards established in references (j) and (k), 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.

(b) 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 annually 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) Navy 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.

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

(1) In addition to the requirements established by reference to the National Primary Drinking Water Regulations per reference (g), 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.

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

(a) 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.

(b) 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.

(c) The lead content of the material used to produce wetted components is used to determine compliance with subparagraph 2g(2). For lead content of materials that are provided as a range, the maximum content of the range must be used.

(d) 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.

(e) 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.

(4) NSF Standard 61 (Annex G)-certified or NSF 372-certified materials also meet the definition of “lead free” for the purpose of Navy ODW Program compliance.

CHAPTER 3
HAULED DRINKING WATER

1. General

a. This chapter establishes procedures for providing 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 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 CO. This is termed “hauled water.”

c. The 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 RWQB and the 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 the health and safety requirements described in Appendix F.

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

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

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 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 H 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) The measured total coliform bacteria must be recorded in a copy of the Hauled Drinking Water Log, per Appendix O.

b. Free Chlorine Residual Monitoring. The free chlorine residual will be measured for every container of hauled water as defined in Appendices F through I. The free chlorine residual in the tank will be measured when the same batch of water is loaded and unloaded. The

measured free chlorine residual will be recorded in the Hauled Drinking Water Log (Appendix O). If a free chlorine residual of at least 0.2 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 O, 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 O) 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 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 FGSs, 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 U.S. Army Public Health Center (PHC) laboratories (subparagraph 4.c), third party accredited (subparagraphs 4.d and 4.e), or approved by the WQOC Laboratory Authority (Appendix K). The WQOC Chair will validate all laboratories used for conducting analysis of drinking water compliance samples. Overseas installations may elect to use the following laboratories:

a. U.S. Army PHC accredited laboratories.

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

(1) Laboratories accredited to ISO/IEC 17025 by International Laboratory Accreditation Cooperation (ILAC) Signatories utilizing EPA approved methodology or WQOC approved equivalent methodology, or

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

c. When U.S. Army PHC laboratories or third-party accredited laboratories cannot be used, or are not available, installations will have their local or on-site compliance laboratories approved for use by the WQOC Laboratory Authority. All local and on-site compliance laboratories will have an initial on-site assessment by the WQOC Laboratory Authority. See Appendix J for assistance with choosing an appropriate ODW laboratory. All laboratories that choose to go through the ODW Laboratory Approval Process (Appendix K) instead of pursuing accepted third party accreditation credentials 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 reserves the right to conduct on-site assessments more frequently 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 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 drinking water compliance samples as well as operating bench laboratories. These responsibilities include:

(1) Validating 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 validated laboratories (i.e., U.S. Army PHC, third party accredited laboratories and WQOC approved laboratories), as well as their capabilities for sample analysis.

(9) Proposing and issuing laboratory-related updates to 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 K) for chemistry, microbiology and parasitology. This requirement does not apply to the U.S. Army PHC or validated 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 of their own laboratories as on-the-job training.

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

(15) Reviewing proficiency testing results for all installation bench laboratories and WQOC approved laboratories on an annual basis.

b. Regional Water Quality Board. The 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 providing input to assist the WQOC.

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

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

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 U.S. Army PHC, other validated accredited laboratories or laboratories approved by the WQOC Laboratory Authority and validated by the WQOC Chair.

(2) Communicating issues with sample collection, sample processing, data validation, 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.

4. Use of U.S. Army PHC or Third-Party Accredited Laboratories

a. Requirements. U.S. Army PHC 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 K. The WQOC Laboratory Authority will validate the capabilities and accreditation of these laboratories. However, each IWQB is responsible for ensuring third party accredited laboratories are meeting the following requirements:

(1) Submitting accreditation credentials to the WQOC Laboratory Authority for acceptance by the WQOC Chair.

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

(3) Reporting any failures of their accreditation-required PT samples to the WQOC Laboratory Authority.

(4) Participating in WQOC Laboratory Authority assessments of the accredited laboratories and observation of on-site assessments by the accrediting authority 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 methods not on the EPA's list of approved drinking water methods will be evaluated by the WQOC Laboratory Authority on a case-by-case basis, upon request from the RWQB, to determine equivalency. RWQBs wishing to have methods from a laboratory approved for equivalency should submit the methods 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 (CECOS), completion of NAVSEA Laboratory Quality and Accreditation Office's drinking water sampling course, or via development of sampling standard operating procedures that cover 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 Validation Status. In addition to the requirements for third party accredited laboratories listed above in subparagraphs 4.a.(1) through 4.a.(6), both U.S. Army PHC and third party accredited laboratories can have their validation 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 ODW system in a timely manner, thereby preventing compliance with regulations and endangering public health. Data that indicates the potential to exceed a 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 assessment.

(9) Failing to adhere to contract or agreement performance measures.

c. U.S. Army Public Health Center. Overseas installations may use accredited U.S. Army PHC laboratories if available. U.S. Army PHC has laboratories in the U.S. (Aberdeen, MD), Europe (Germany) and the Pacific (Japan). All U.S. Army PHC laboratories are accredited by an ISO 17011 ILAC signatory and participate in drinking water PT programs requiring validation of certified methods for analysis. However, installations selecting this option should confirm that the U.S. Army PHC laboratories meet host nation approval requirements if using them for additional sampling required by host nation FGS. In addition to ensuring that the U.S. Army PHC laboratories can meet host nation approval requirements, installations need to ensure that use of the U.S. Army PHC laboratories is logistically possible (e.g., shipping availability and acceptable holding times and temperatures).

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 K 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.

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, 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).

5. Installation Bench Laboratories. Installation laboratories meeting the definition of “Bench Laboratory” must comply with reference (a), satisfactorily analyze PT samples annually for all target analytes, and report the results to the WQOC Laboratory Authority. Bench Laboratories must also undergo annual assessments by the RWQB and be reviewed during Sanitary Surveys by the WQOC. However, Bench Laboratories do not have to be approved by the WQOC Laboratory Authority or validated by the WQOC Chair. A laboratory performing compliance sampling does not meet the definition of “Bench Laboratory,” and would instead be classified as being an “Installation Compliance Laboratory,” which would require compliance with the requirements of Appendix K.

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-validated 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.

This Page Intentionally Left Blank

CHAPTER 5
REPORTING REQUIREMENTS

1. General. The Navy 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 IWQBs, RWQBs and the 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 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, Technical Advisory Board 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 Shore Drinking Water Quality Report. Per reference (a), CNIC will submit an annual report on the status of Navy shore facility and installation drinking water quality worldwide for the previous fiscal year to the VCNO, via OPNAV N4.

c. Navy ODW Requirements Plan of Action and Milestones. The Navy ODW Requirements 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.

d. 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 (CCR) will be developed and issued in accordance 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 FGS, reference (g) 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 (cryptosporidium/giardia monitoring or alternative 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 PWD point of contact.

(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, 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 EPA provides guidance for water suppliers in the “Preparing your Drinking Water Consumer Confidence Report,” available at https://www.epa.gov/sites/production/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.

e. System Inventory. IWQBs will regularly assess ODW system inventories. By 30 September of each year, IWQBs will report an official system inventory to the WQOC via the RWQB for review and approval for the following year. The inventory will reflect the drinking water systems projected for use by the installation for the next fiscal year and will be updated annually at the beginning of the fiscal year. If the planned system inventories change during the fiscal year, these updates will be provided to the WQOC via official letterhead.

f. Chemical Inventory. RWQBs will report a chemical inventory to the WQOC by 30 September of each year and upload the inventory to the 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.

g. Stakeholders and RWQB Updates

(1) The WQOC will update the ODW program stakeholders (defined in Chapter 1, Program Management and Oversight) 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, ORC updates, 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, CTO status, current issues, construction updates, physical inspection program updates and any other relevant information.

h. ODW Metrics Scorecard. The IWQB will report information to the RWQB monthly to update the ODW Metrics Scorecard. The information on the Scorecard includes population change, FFHC status, health-based or other drinking water violations and the CTO status of ODW systems. The RWQB will provide the ODW Metrics Scorecard to the WQOC with consolidated data from the installations. RWQBs will upload scorecard metrics to the Navy ODW Data Repository by the tenth of each month and notify the WQOC when complete.

i. 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.

j. Water Treatment and/or Distribution Facility 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 adhoc reporting to the RWQB and WQOC. IWQBs will also upload operational data to the Navy ODW Data Repository monthly.

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

l. Analytical Results. IWQBs will promptly report analytical results pertaining to active 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.

m. MCL Exceedances

(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 CO, RWQB and any other key IWQB members. The IWQB has no later than 24 hours from the discovery of an exceedance to report to the RWQB. Per Chapter 1 of this manual, the exceedance must be reported to the NAVFAC Environmental point of contact on the RWQB.

(2) The RWQB will report the exceedance 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 HQ Environmental, NAVFAC HQ Public Works, and CNIC HQ points of contact on the WQOC. The status of and updates to MCL exceedances will also be reported in the RWQB quarterly update briefs, quarterly stakeholders briefs and ODW Metrics Scorecard.

(3) At a minimum, information reported on MCL exceedances will contain:

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

n. 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.

o. 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. 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

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 (n) and required by reference (a). This does not obviate the existing requirements to meet FGS, Overseas Environmental Baseline Guidance Document 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. A medical authority 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.

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 are 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/pdf/dwact-2016.pdf>.

CHAPTER 6 ENFORCEMENT

1. General. Compliance with Navy ODW Program requirements ensures Navy ODW systems are equally as protective of public health as U.S. drinking water systems. The WQOC, as directed by 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, 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 RWQB for an installation in its area of responsibility. The WQOC will request a corrective action plan and timeline from the installations. These will be validated by the Regional boards 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 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 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. Variances. IWQBs may request variances from the requirements in this manual to help achieve ODW compliance. Variances 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 FGS. Variances from provisions of ODW requirements may be granted by CNIC, as the Navy Executive Agent, except for any variances from maximum contaminant level or treatment technique requirements. Variances are granted based on a temporary, short-term basis; installations will work to be

compliant with ODW policy. Variances granted from CNIC ODW requirements do not absolve compliance with reference (b) or FGS.

a. Requests for variances 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 variances 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 ODW Program will use of the term “fit for human consumption” vice “potability” for water quality policy matters. FFHC is the term used by BUMED, defined in reference (h) 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 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 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 MCL requirements, as defined in FGS, reference (b) and Chapter 2 of this manual. This statement aligns with 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 IWQB, chaired by the installation 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 medical authority and recommendation of the IWQB.

d. The 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 the required primary drinking water quality standards, which are the 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, medical, 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 medical authority 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 RWQB, and the RWQB must inform the 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 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 ORC, Public Works Officer, installation CO or REGCOM have 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 ODW systems will be conducted under the authorization of the 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 sanitary 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 CNIC Gateway 2.0 (G2) website at <https://g2.cnic.navy.mil/cnichome/SitePages/CNIC%20Home.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 FFHC. This survey is considered the central element of the CTO Program. As part of the survey, and as outlined in reference (e), the surveyor must evaluate, address, and document the following safety, reliability, and capability of the 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 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) Schematic diagrams of the treatment process and examination and evaluation of the adequacy and appropriateness of all elements of the current treatment process.
- (4) Examination and evaluation of the 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 flushing program, preferably a Unidirectional Flushing program implemented on a yearly basis.
- 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 MCL exceedances, or other incidents that may compromise the water system or water quality.
- g. Appendix O 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. Appendix O also contains a standardized sanitary survey checklist.
- h. Sanitary Survey Team. The sanitary survey team will consist of the following members:
- (1) Sanitary Survey Team Lead. A WQOC-approved NAVFAC Atlantic (LANT) or Pacific (PAC) Echelon 3 drinking water subject matter expert or WQOC-approved HQ staff member. If the Team Lead is an HQ staff member, the sanitary survey team will include a WQOC-approved NAVFAC Echelon 3 (LANT or PAC) staff member.
 - (2) Architect/Engineer (A/E) Contractors. Technical drinking water subject matter experts (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 NMCPHC or BUMED assigned to perform the medical asset component of the inspection.
 - (4) Laboratory Authority Surveyor (as needed). A representative from NAVSEA assigned to perform the laboratory assessment component of the survey if the installation uses an on-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) Represent the regulatory authority on the sanitary survey team.
- (b) Complete sanitary survey training or other equivalent on-the-job training prior to acting as Team Lead.
- (c) Act only in a regulatory authority role, and will not exercise other job responsibilities, such as reach back support, while serving as Team Lead.
- (d) Ensure the sanitary survey focuses on the task of documenting deficiencies throughout the field work process.
- (e) Advise the observers on limits of engagement with the sanitary survey team.
- (f) Ensure the number of observers is considerate of the host installation size.
- (g) Coordinate and schedule meetings, onsite interviews, and facility inspections between the survey team members and the installation.
- (h) 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.
- (i) Prepare the sanitary survey team's request for information (RFI), and track and review RFI response from the installation.
- (j) Prepare and present the in-brief and out-brief (associated with the field work) to the installation.

(2) Navy Medicine Surveyor will:

- (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) Complete a command checklist that will be an appendix to the final sanitary survey report.

(3) Laboratory Authority Surveyor will:

- (a) Report any laboratory findings that are considered significant to human health to the sanitary survey team and includes these findings in the sanitary survey out brief.
- (b) Complete a command checklist that will be an appendix to the final sanitary survey report.

(4) A/E Contractors will generate documentation of the sanitary survey assessment in accordance with the contract scope of work and in consultation with the Contracting Officer Representative.

(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 1, 2, 3 or 4 staff.

2. Regional or installation staff.

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

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

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

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

(f) The Team Lead may limit observer participation in any of the sanitary survey events as necessary.

j. Procedure

(1) The survey report will include but is not limited to the following requirements:

(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 deficiencies identified during the sanitary survey and the associated policy and regulatory citations for the identified deficiencies.

(2) Sanitary survey RFIs will be fulfilled by all installations on an annual basis, and all RFI data uploaded to the 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 POA&M, will be provided to the WQOC for review during the CTO review process.

3. Deficiencies

a. 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 references (o) and (p).

(1) A significant deficiency is defined as:

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

(b) 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.

(2) Moderate deficiencies are defined as any of the following:

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

(b) Any failure to physically operate the system in accordance with standard operating procedures (SOPs) and plans; or

(c) 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.

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

This Page Intentionally Left Blank

CHAPTER 9
CERTIFICATES TO CONSTRUCT AND OPERATE

1. General. This chapter establishes criteria, requirements and processes for the construction or the modification of Navy ODW systems and for the Navy ODW 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 United States 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 WQOC 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 RWQB, using the CTC Request Form (Appendix O).

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.

(b) Existing Data Review

1. During the planning phase, the TAB will review the project elements and provide input to the development of 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 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, in accordance 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 prepare a recommendation to the WQOC Chair for issuance of a CTC. If requirements are not met, the TAB may recommend disapproval of CTC issuance and recommend that design documents be modified and resubmitted for CTC issuance.

(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.

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

1. Prior to startup and testing of the constructed facility, the execution agent will notify the TAB and the WQOC Chair of the schedule for facility 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 representatives to witness and review facility 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 facility startup and testing results, the TAB will convene and review data collected. If startup testing results are within acceptable performance parameters in accordance 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, 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.

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 acceptance, and will issue a letter of recommendation for facility acceptance and issuance of the interim CTO. Once an interim CTO is issued to a newly constructed or modified ODW system, the system will enter the regular 3-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 CTO, with the goal of achieving 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 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 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 POAM. A POAM 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 results of the most recent integrated Environmental Management System (EMS) and Environmental Quality Assessments (EQA) External Audit (where applicable), the most recent EMS and EQA Internal Audit (where applicable), and ORC and 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 CNIC G2 ODW Requirements POA&M website at <https://g2.cnic.navy.mil/tscnichq/N4/IMKM/DC/Documents/Forms/AllEnviron.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, along with the most recent integrated EMS and EQA External and Internal Audits (where applicable), 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 via email. 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). The following steps further define this process:

(a) Step 1. The WQOC Chair will convene a formal review for each CTO immediately upon notification that the sanitary survey POA&M has been submitted via the CNIC G2 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 O of this manual.

(d) Step 4. The WQOC staff will review all the supporting documents including the sanitary survey report, EMS, and EQA External and Internal audit documents, 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.

(e) Step 5. The CTO review and recommendation will require a minimum of three WQOC members and three members of the RWQB staff actively participating in the review process. The 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 team leader as needed. As part of the CTO review, the HQ and RWQB team leaders will execute the following actions:

1. Ensure the sanitary survey report, POA&Ms for sanitary survey deficiencies, EMS and EQA External and Internal Audit results related to drinking water, and operator certification documentation are provided to the WQOC and RWQB staffs participating in the review.

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

3. Upon receipt of the written comments, the RWQB will confer with the WQOC staff and adjudicate conflicting comments.

4. Upon receipt of written comments, the HQ WQOC team lead will draft a general assessment and document resulting assessment and comments with the CTO comment template (Appendix O). The RWQB lead will draft the same for the RWQB review.

(f) Step 6. WQOC CTO review participants 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.

(g) Step 7. 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.

(h) Step 8. 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.

(i) Step 9. 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. The RWQB will conduct a final vote, and either submit both the RWQB recommendation and the WQOC recommendation to the RWQB Chair for a final decision or submit the WQOC recommendation with RWQB concurrence.

(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 would potentially compromise public confidence in the Navy drinking water system quality, and subject the impacted installation to political pressures to resolve outstanding issues to achieve the full CTO. Additionally, CTO conformance is reported annually to the VCNO in the Annual Navy Shore Drinking Water report.

(5) Implementation of the Sanitary Survey POA&M (IWQB and RWQB). 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 CNIC G2 website.

(6) Compliance and System Condition Tracking (IWQB and RWQB). Compliance tracking is performed at the installation level with the support of RWQB. This will be documented in the Navy ODW Data Repository 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.
- (b) The commitment to resolve or correct moderate and minor deficiencies in less than a year, in accordance with the terms of the POA&M and as approved by the RWQB 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 RWQB 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 for drinking water 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 CNIC G2 website after issuance of the sanitary survey final report.

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

(4) 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.

f. Responsibilities

(1) Water Quality Oversight Council will:

- (a) Establish 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) Region Water Quality Board 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 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 ODW Data Repository by installations.

(g) Assist REGCOM with issuance of CTOs.

(h) Assist IWQBs in routine ODW system inspections.

(3) Installation Water Quality Board 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 CO in determining funding needed for corrective actions.

This Page Intentionally Left Blank

CHAPTER 10
OPERATOR TRAINING AND CERTIFICATION PROGRAM

1. General

a. Reference (a) and the country specific 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 similar to that required by federal and state operator certification programs in the U.S.

b. Additionally, reference (q) requires ODW treatment and distribution system operators be trained as required by reference (a) 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, these regulations currently do not have specific provisions for a formal Navy drinking water systems Operator Training and Certification (OT&C) program similar to that for U.S.-established systems.

c. It is the responsibility of the WQOC to develop procedures and minimum standards for the training and certification of the ODW ORC and AORC.

d. Accordingly, this chapter establishes a Navy overseas ORC and AORC OT&C program to ensure operators satisfy the requirements of an equivalent stateside, EPA-approved program that is modified to include overseas requirements. This program accomplishes the following:

(1) Provides a system for classifying water treatment and distribution facilities.

(2) Establishes procedures for the exam and certification of water treatment and distribution facility operators to operate these facilities.

(3) Establishes the professional development requirements for operator recertification and stipulates the minimum number of contact hours each operator must achieve to maintain or improve operator capabilities and certification levels.

2. Applicability. The requirements of the Navy’s OT&C program apply to all Navy overseas ORCs, AORCs and operators. These roles may be filled by Navy operators, DoD, and contractor operating personnel (e.g., base operating support contractors), Region 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, NOCA Board, RWQBs, and IWQBs.

b. These guidelines were developed to enable the NOCA Board, with support from RWQBs and IWQBs, to administer a successful operator certification program ensuring the protection of the public.

4. Responsibilities

a. Navy drinking water operators will meet the following requirements:

(1) Directly operate, maintain, repair, manage, and oversee the drinking WTP 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) Maintain operator logs and site logbooks per Chapter 5 of this manual.

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

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

(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) Review and understand all drinking water SOPs.

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

(1) Work on the site, be familiar with and have the ability to operate the equipment on the site.

(2) 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.

(3) Be available at all times the water system is in operation.

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

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

c. The installation must provide 24/7 coverage of their water systems which include after hours, weekends, and holidays when the water treatment plant or distribution systems are unmanned. The IWQB will decide the level of coverage required to meet the requirement and may include a roving security patrol or an automated monitoring system (Supervisory Control and Data Acquisition system, or similar) from a remote location.

5. Operator Certification

a. Water treatment and distribution facilities 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 facility the operator is certified to operate. Hence, a Level II certified operator may be the ORC for facilities classified as Level II or Level I – but not for facilities classified as Level III. An applicant must meet the Navy's overseas operator drinking water requirements for the type and level of facility 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 ORC and AORC certification process is outlined in Appendix M.

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.g. for process and requirements. The ORC must possess a valid certificate issued by the RWQB equivalent to or exceeding the classification of the facility they operate. The AORC's certificate must be no more than one level lower than the classification of the facility 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 WQOC NAVFAC HQ PW representative by telephone/email within 15 days. A POA&M toward filling the vacancy must be sent to the WQOC NAVFAC HQ PW representative within 30 days of the vacancy. Any person (e.g., AORC) stepping in temporarily to fill a vacancy does not automatically become the ORC.

d. Certified Operator Requirements. All U.S. Navy overseas installation water treatment plants and distribution systems must have a Navy-certified ORC and AORC assigned. The IWQBs and RWQBs are responsible for assigning the appropriate number of ORCs and AORCs. Each system must have one ORC and at least one AORC, yet they may have more than one AORC. ORCs and AORCs may be assigned to multiple systems. Additionally, water treatment plant and distribution system operators who are performing functions as an operator working at the treatment and distribution plant, but are not the ORC and AORC, must possess the necessary education, experience, training and other qualification requirements for certification as a Navy Treatment Level 1 and Navy Distribution Level 1 operator. They must apply for and obtain certification per the procedure in Appendix M, will be designated as an “Operator” upon certification and are subject to the same professional development requirements in subparagraph 5.o. of this chapter.

e. Operator Certification Levels. Applicants for the various levels of certification will be of legal working age, in accordance with 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 N. At the discretion of WQOC, via the NOCA Board, and on a case-by-case basis, an existing operator whose application exhibits extensive operations knowledge and field experience may be allowed to sit for a particular certification exam without having to take the training class (refer to subparagraph 5.h. for exam request process).

f. Operator in Training Program

(1) In addition to Operator Certification Levels 1, 2, and 3, operators who do not meet the education and experience criteria for full certification (refer to Table 4-1) may apply through the Operator in Training (OIT) Program to take the Navy T1 or D1 exams in order to obtain training and gain experience while working at the drinking water plant.

(2) Applicants must submit the Exam and Certification Application for Drinking Water System Operator and request the Navy T1 or D1 exam.

(3) OITs who pass the T1 or D1 exams are eligible for certification once they meet the experience and educational requirements for that level.

(4) Contractors are not eligible for the OIT Program.

g. 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 Association of Boards of Certification (ABC) certification. The determination of reciprocity will be made on a case-by-case basis as determined by the WQOC via the NOCA Board.

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

(b) The ABC Exam Equivalency Chart, which indicates which U.S. State certification programs are considered equivalent to ABC 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 ABC 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.

(3) Although, operators holding a valid, current U.S. Drinking Water Treatment and U.S. Drinking Water Distribution license or ABC certification generally will not be subject to training and exam requirements, the WQOC 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 exam; or

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

h. Exam Request and Certification

(1) Exams may be taken at the end of a classroom training session or after the applicants completes the self-study modules. Exams not taken during a classroom session (i.e., self-study) may be requested using the Exam and Certification Application form (Appendix O). The exam request should be sent to the WQOC, via the NOCA Board, for approval. RWQBs may request proctors to administer exams using the process described in the Proctor Policy (Appendix O).

The proctor designation form must be signed and submitted to the WQOC NAVFAC HQ PW representative for approval.

(2) Exams taken during a classroom session (i.e., training and exam provided by a contractor) require approval by the WQOC via submission of the Exam and Certification Application form prior to administration of the exam. An operator who does not pass the exam at the end of the training will receive two additional opportunities to retake the test at a later date.

(3) 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.

(4) 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 WQOC based on their education and drinking water experience.

(5) Any applicant who fails an exam three times must retake 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. Self-study of the training materials will not be permitted. There is no waiting period between exams.

(6) Applicants who wish to retake an exam a second or third time do not need to resubmit an Exam and Certification Application form if all previous information is still valid. An email from the RWQB to the WQOC acknowledging that the information in the previous submission is still valid and that the RWQB is aware that the applicant has previously failed the exam and supports the re-take is sufficient.

(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 a certificate, the applicant must achieve a minimum exam passing score of 70 percent.

(9) Upon successful completion of the exam, applicants are automatically considered for certification as an ORC or AORC and must check the appropriate box on the Exam and Certification Application form. A separate Certification Application form will not be required. Consideration of the applicant's ORC/AORC certification will be discussed at the next regularly scheduled NOCA Board meeting following successful completion of the exam. Applicants who do not check the appropriate ORC/AORC box will not be permitted to take the exam and the application will be rejected by the NOCA Board.

(10) Full certification is valid for three years.

i. Transfers

(1) If an operator with a current full certification moves to a different ODW system within their area of responsibility (AOR), their full certification moves with them to the new ODW system without the need for a new Exam and Certification Application. The approving RWQB is the same. An email notification to the WQOC NAVFAC HQ PW representative 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, their full certification moves with them to the new ODW system; however, the RWQB will need to prepare and submit a new Exam and Certification Application. The approving RWQB is different than the previous RWQB. 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 WQOC on a case-by-case basis. Although solely at the discretion of the WQOC, provisional certification may be granted in cases where the operator has passed the appropriate exam and is lacking less than a year of experience to reach full certification. Contractors and lessors are not eligible for provisional certification.

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 (e.g., Navy Level T1 training does not include fluoridation training; however, there are T1 systems which include fluoridation).

l. Fluoridation

(1) ORCs/AORCs of T1 and T3 systems which add fluoride must demonstrate evidence of fluoridation training prior to full certification. This will involve an approved Installation Environmental Program Director, PWO, Drinking Water Program Manager, or other subject matter expert to review the Navy T2 fluoride training module (or similar training module approved by the NOCA Board) with the applicant, generate a certificate of completion, and submit this completion certificate along with their ORC/AORC application. Alternatively, the applicant may submit proof of outside fluoridation training (e.g., range of knowledge in obtaining lower certifications, course agendas) with their application.

(2) Additional certification endorsements may be added by the NOCA Board as circumstances dictate.

m. 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.p.) by the certification expiration date, the certification will expire. An operator whose certification has expired may seek reinstatement within two years of expiration. Expired certifications may be renewed at the discretion of the NOCA Board and may include additional training or testing requirements.

(2) 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.

(3) 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.o.) under previous requirements. Refer to Table 4-1 for a summary of these 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.

n. 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. 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.

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

o. Grandfathering. No ORC, AORC, applicant, or operator will be grandfathered under previous provisions unless explicitly granted a variance by the WQOC. 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.

p. 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 (CEU) equals ten contact hours.

(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. The requirement must be met before renewing the certification.

(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 on the NAVFAC Portal Drinking Water Page). 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 Course Approval Application 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 Regional 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 (OJT) will not be acceptable for contact hours. OJT is different from site-specific or installation-provided training developed and administered by an SME.

6. Facilities 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 Facility Classification

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

(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), a Level I treatment certificate may be appropriate. If the treatment is more complex, a Level II or III treatment certificate would be needed.

c. Water Distribution System Facility Classification. The classification level of the water distribution facility will dictate the certification level required for operation. Designation of water distribution facility classification will follow the point system provided in the Water Distribution Facility Classification Point System (Appendix O). Classification depends on the total number of points assigned to each applicable parameter listed. Classifications will be designated according to the following points:

7. Expected Range of Knowledge

a. Drinking water treatment and distribution facility 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 to the water customers. To assist the individual in preparation for the certification process, the Expected Range of Knowledge (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 ABC website has an extensive list of “Need-to-Know” criteria, which can be used as a guideline for drinking water operators. ABC covers most requirements, except for reference (a) 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. Translation of Training Materials. 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 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 RWQB and operator training that supports operator certification.
2. Installation Commanding Officers, Executive Officers and Public Works Officers. Installation 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 instruction.
3. Drinking Water Program Managers. Prospective Drinking Water Program Managers will complete Navy Drinking Water Program training equivalent to installation CO and XO training and supplemental training modules, located on the Navy Environmental Compliance Assessment, Training and Tracking System website, <https://environmentaltraining.ecatts.com>.
4. Operators. ORCs, AORCs, and operators will comply with training and certification requirements established in this manual.
5. Regional and Installation Preventive Medicine Authority. Regional and Installation Preventive Medicine Authorities will comply with training requirements established in reference (h).
6. Records. Navy ODW Program training records will be maintained for installation COs/XOs by Commander, Navy Installations Command Headquarters. 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.

This Page Intentionally Left Blank

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 ODW Data Repository, located at <https://eprweb.cnic.navy.mil/eprwebnet/web/Logon.aspx>.

2. Requirements. Navy ODW Data Repository users will comply with protocols found in reference (s). Navy ODW Data Repository users with WQOC access that manage data at the WQOC level will comply with protocols found in reference (t).

3. Records

a. ODW Data Repository

(1) RWQBs will upload the ODW Metrics Scorecard to the ODW Data Repository by the tenth of each month.

(2) RWQBs will upload final CTO documentation to the ODW Data Repository for each applicable drinking water system.

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

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

(5) IWQBs will upload sanitary survey RFI data annually to the ODW Data Repository.

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

b. Commander, Navy Installations Command (CNIC) Gateway 2.0 (G2) Website

(1) At least quarterly, IWQBs and RWQBs will update and validate the Requirements POA&M on the CNIC G2 website, located at <https://g2.cnic.navy.mil/tscnichq/N4/N45/ODW/Lists/POAM/Summary.aspx>.

(2) All Requirements POA&M updates and management will be conducted on the G2 site.

This Page Intentionally Left Blank

APPENDIX A
REFERENCES

- a. OPNAVINST 5090.1E
- b. DODM 4715.05 Volume 3, Overseas Environmental Baseline Guidance Document: Water, 29 Jun 2020
- c. OPNAV memo of 14 Oct 16, Navy Policy Requirements for Drinking Water Exceedances
- d. NAVMED P-5015-5 (Rev. 7-2019), Manual of Naval Preventive Medicine, Chapter 5 Water Quality for Shore Installations, of 1 Jul 19
- e. National Primary Drinking Water Regulations (40 CFR 141)
- f. Public Health Services Act of 1944
- g. Safe Drinking Water Act of 1974 (amended 1996)
- h. BUMEDINST 6240.10C
- i. National Sanitation Foundation/American National Standards Institute (NSF/ANSI) Standard 60 “Drinking Water Treatment Chemicals – Health Effects,” of October 2013
- j. European Norm CEN/TR 14269: 2001, Chemicals Used for Treatment of Water Intended for Human Consumption – Guidelines for the Purchase of Products
- k. Japan Water Works Association (JWWA) K120 2008-2: Sodium Hypochlorite for Water
- 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. Revised Public Notification Handbook, EPA 816-R-09-013, of March 2010
- o. USEPA 815-R-99-016, Guidance Manual for Conducting Sanitary Surveys of Public Water Systems
- p. USEPA 815-R-08-015, Sanitary Survey Guidance Manual for Ground Water Systems
- 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)
- t. Navy Overseas Drinking Water Database WQOC Users Guide of March 2015, NAVFAC EXWC
- u. USEPA 815-R-05-004 of January 2005, EPA Manual for the Certification of Laboratories Analyzing Drinking Water
- v. EM 385-1-1, Safety and Health Requirements, of 15 September 2014
- w. UG-2029-ENV, Cross-Connection Control and Backflow Prevention Program Implementation at Navy Shore Facilities, of May 1998

APPENDIX B
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, CNIC, references the National Primary Drinking Water Regulations reference (p) as the standard for overseas installations in Chapter 2 of this manual. One of the incorporated requirements in reference (p) 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 GWUDI of surface water. The EPA delegated GWUDI determination criteria to the states in the GWUDI definition in 40 CFR 141.2; therefore, this manual establishes GWUDI determination criteria for the Navy 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, 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. RWQBs coordinate the preliminary assessment process with installations, review the installations' GWUDI screening assessments and supporting documentation, and submit GWUDI status recommendations to the 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 (link to form in Appendix O) 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 from 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 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. PA Overview

a. The GWUDI determination process begins with a PA. The installation will complete a PA worksheet (link to form in Appendix O) 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 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 giardia, 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.

This Page Intentionally Left Blank

APPENDIX C
SURFACE WATER TREATMENT COMPLIANCE ASSESSMENT TOOL

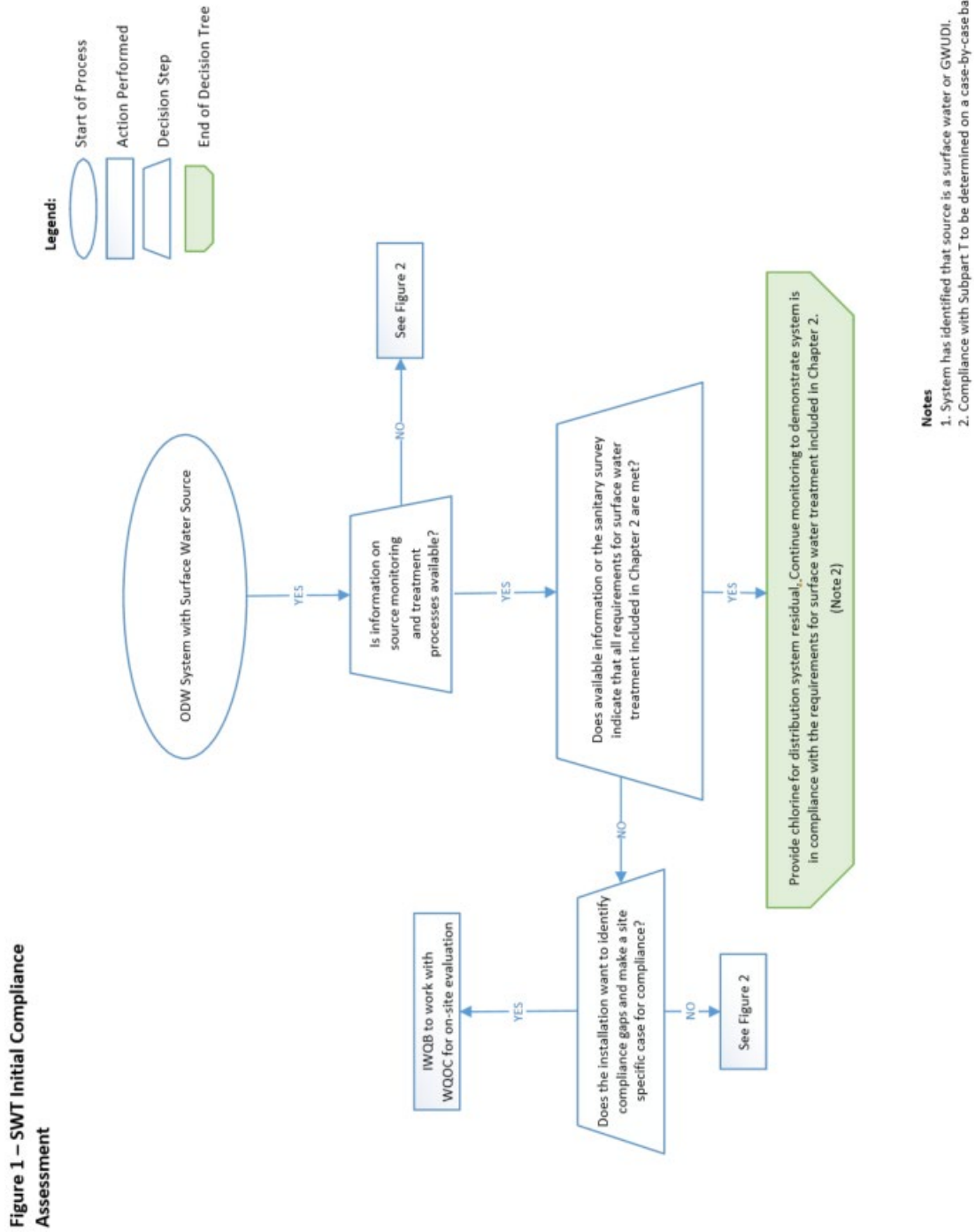


Figure 1 – SWT Initial Compliance Assessment

Figure C-1. Initial Surface Water Treatment Compliance Assessment

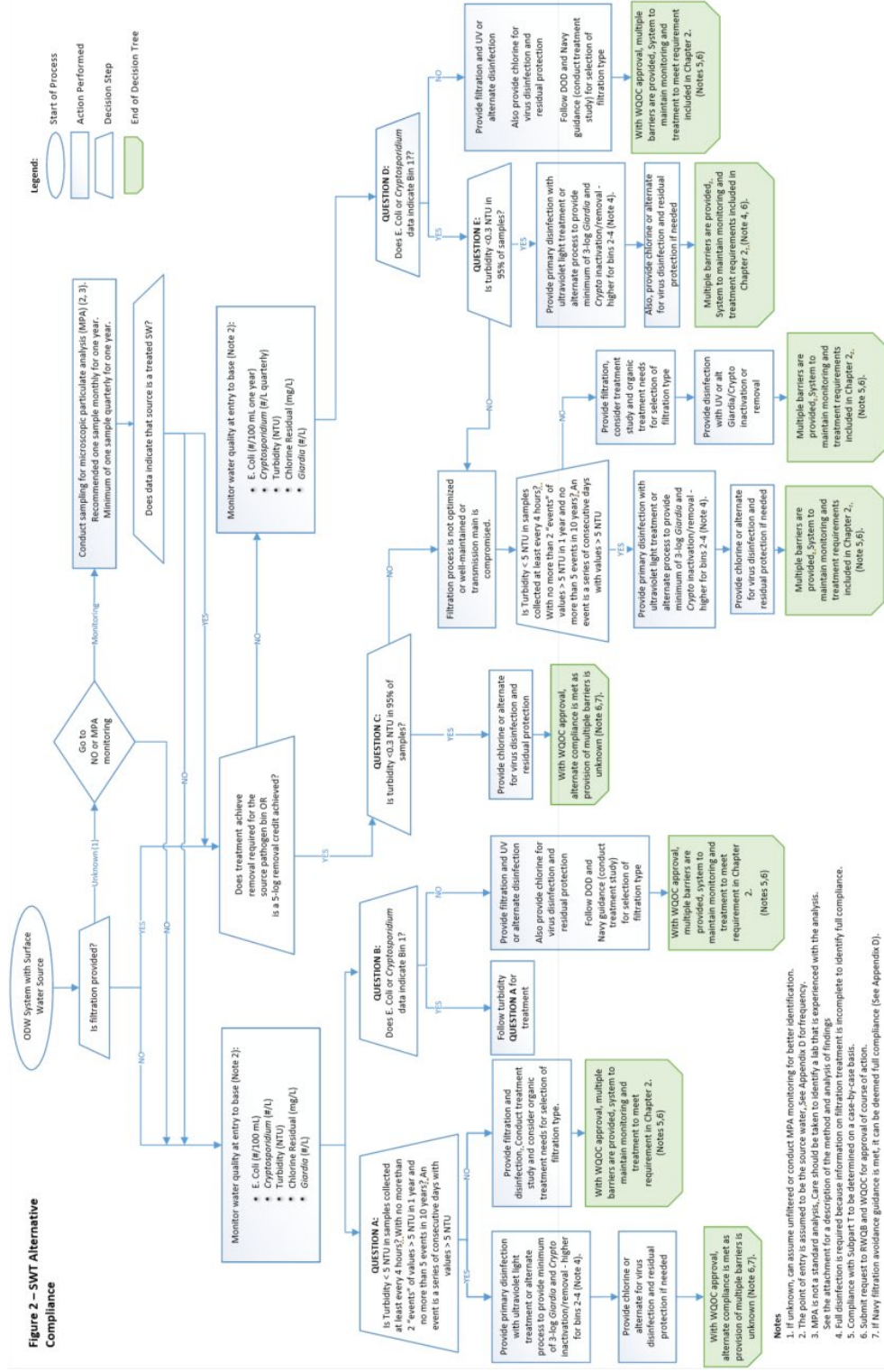


Figure C-2. Alternate Surface Water Treatment Compliance Assessment

APPENDIX D
SURFACE WATER TREATMENT GUIDANCE - FILTRATION AVOIDANCE CRITERIA

This section provides the authoritative list of criteria that must be met in order for a Navy Overseas Drinking Water system using surface water or groundwater under the direct influence of surface water to demonstrate compliance with requirements necessary to avoid filtration in the operation of the system.

1. Source Water Quality Conditions

- a. The fecal coliform (FC) concentration not to exceed (NTE) 20/100 ml or total coliform (TC) concentration NTE 100/100 ml in samples of source water immediately prior to the first point of disinfectant application in at least 90 percent of measurements made for the previous six months on an ongoing basis per reference (e).
- b. Turbidity NTE five turbidity at the same location mentioned in Criterion 1 per reference (e).

2. Site-Specific Conditions

- a. Disinfection treatment demonstrating at least 99.9 percent (3-log) inactivation of giardia and 99.99 percent (4-log) inactivation of viruses every day except one day each month in previous 12 months of operation per reference (e).
- b. Disinfection system equipped with either redundant components or automatic shut-off of delivery of water to the distribution system whenever chlorine residual is less than 0.2 mg/l per reference (e).
- c. The residual disinfectant concentration in the water entering the distribution system not less than 0.2 mg/L for more than 4 hours per reference (e).
- d. The residual disinfectant concentration in the distribution system is not undetectable in more than 5 % of the samples each month for any two consecutive months that the system serves water to the public per reference (e).
- e. Maintaining a watershed control program which minimizes the potential for contamination by giardia, viruses and cryptosporidium oocysts in the source water. The watershed control program includes a wellhead protection program. Annual reporting of the program implementation is required per reference (e).
- f. Annual on-site inspection by the WQOC or a WQOC-approved party to assess the watershed control program and disinfection treatment process per reference (e).

g. The public water system not being identified as a source of waterborne disease outbreak, or else modified sufficiently to prevent another such occurrence per reference (e).

h. Compliance with the MCL for total coliforms in at least 11 months of the 12 previous months of operation per reference (e).

i. Compliance with applicable standards related to disinfectant residuals and disinfection byproducts (DDBP). These standards include reporting, monitoring, and application of treatment technique for control of DBP precursors as necessary per reference (e).

Parameter	Sampling Frequency	Total Number of Samples	Other
E. coli (#/100 ml)	Every two weeks for one year	26	Be sure method is MPN or plating; not P/A
Cryptosporidium (#/L)	Monthly for two years, or twice monthly for one year	24	Can do more samples to improve source characterization (1)
Turbidity (ntu)	Daily	365	Suggest online analyzer
Chlorine residual (mg/L)	Weekly, if possible	52	As frequently as possible; suggest online analyzer
Giardia (#/L)	Monthly for two years, OR twice monthly for one year	24	Can do more samples to improve source characterization (1)
Microscopic Particulate Analysis (MPA) (Optional; not a monitoring requirement)	Once monthly for one year; thereafter minimum of one sample quarterly for one year	12 (minimum of 4 samples)	MPA will be approved by the WQOC in advance of sampling

Table D-1: Sampling Frequency Requirements for Water Quality Monitoring

1. It is recognized that this is unlikely due to challenges with sampling and shipping

APPENDIX E
PROCEDURE FOR SELECTION OF TREATMENT CHEMICALS

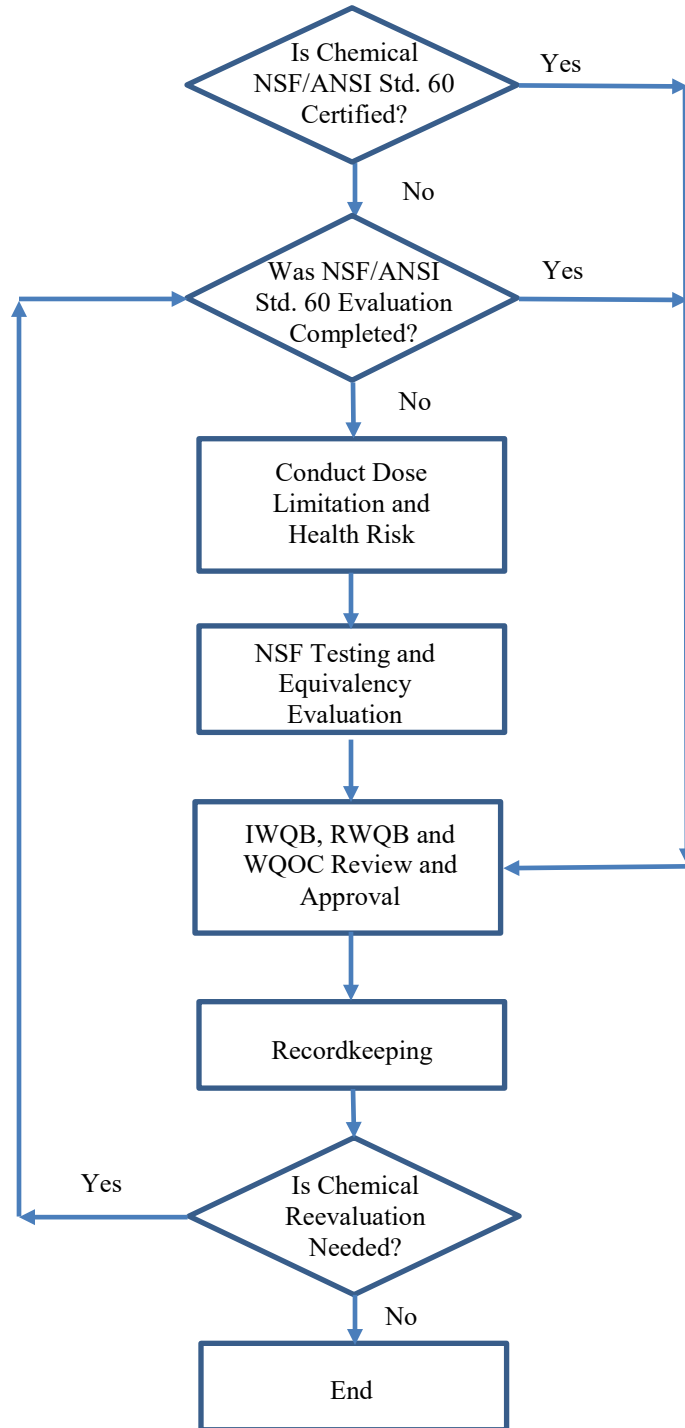


Figure E-1. Procedure for Treatment Chemical Selection

This Page Intentionally Left Blank

APPENDIX F
HAULED WATER HEALTH AND SAFETY REQUIREMENTS

All drinking water treatment plant personnel, including the ORC and AORC, will follow these health and safety requirements:

1. Follow all Navy safety regulations.
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 FFHC container water refilling.
 - b. Use disposable gloves during servicing of FFHC water dispensers (refer to Appendix H, 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.

This Page Intentionally Left Blank

APPENDIX G
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 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 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, and bulk 2,000 to 5,000-gallon tank trucks.

c. Containers 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 a dedicated container and 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 NSF/ANSI Standard 61, or verified to be constructed from food grade material, 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. This applies to bladders or synthetic (e.g., rubber, plastic) tank liners as well.

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

d. Food service grade disposable gloves

e. Dishwashing soap (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 lb drum); or solution concentrate. Disinfectants should be certified to NSF/ANSI Standard 60.

i. FFHC water hoses will be certified to National Sanitation Foundation (NSF)/American National Standards Institute (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.

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 ORC will approve all equipment and materials to be used.

APPENDIX H 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. 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 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 Container and Can

(1) Fill the container with two liters of water. Pour at least 10 mL of sodium hypochlorite solution inside the container (refer to Appendix I 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-mg/L chlorine solution (refer to Appendix I 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 I 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 I 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 dechlorination prior to discharging. In this case, contact the ORC for assistance.

3. Portable Container Filling

a. Fill and offload containers using sanitary protocols (refer to reference (v)). 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 (u). 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 G, 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) thru 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 4a) 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 O) 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 O).

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 O).

(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 A.

(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 three days.

(9) Secure/lock the storage tank access opening after each delivery.

(10) Refer to Chapter 3, subparagraph 5.a.(1)(b) 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.

This Page Intentionally Left Blank

APPENDIX I
CHLORINE DOSE CALCULATION AND MEASUREMENTS

This information comes from the Technical Bulletin: Sanitary Control and Surveillance of Field Water Supplies. Tables I-1 and I-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 I-1: Sodium Hypochlorite 5 percent (unscented)

Volumes of 70-percent available HTH (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 I-2: Calcium Hypochlorite (HTH)

Note:

¹The shaded area of the table indicates the volume of a concentrated solution made from dissolving 1 tsp of HTH in a half canteen cup (1½ cups) of water.

This Page Intentionally Left Blank

APPENDIX J
OVERSEAS DRINKING WATER LABORATORY DECISION TREE

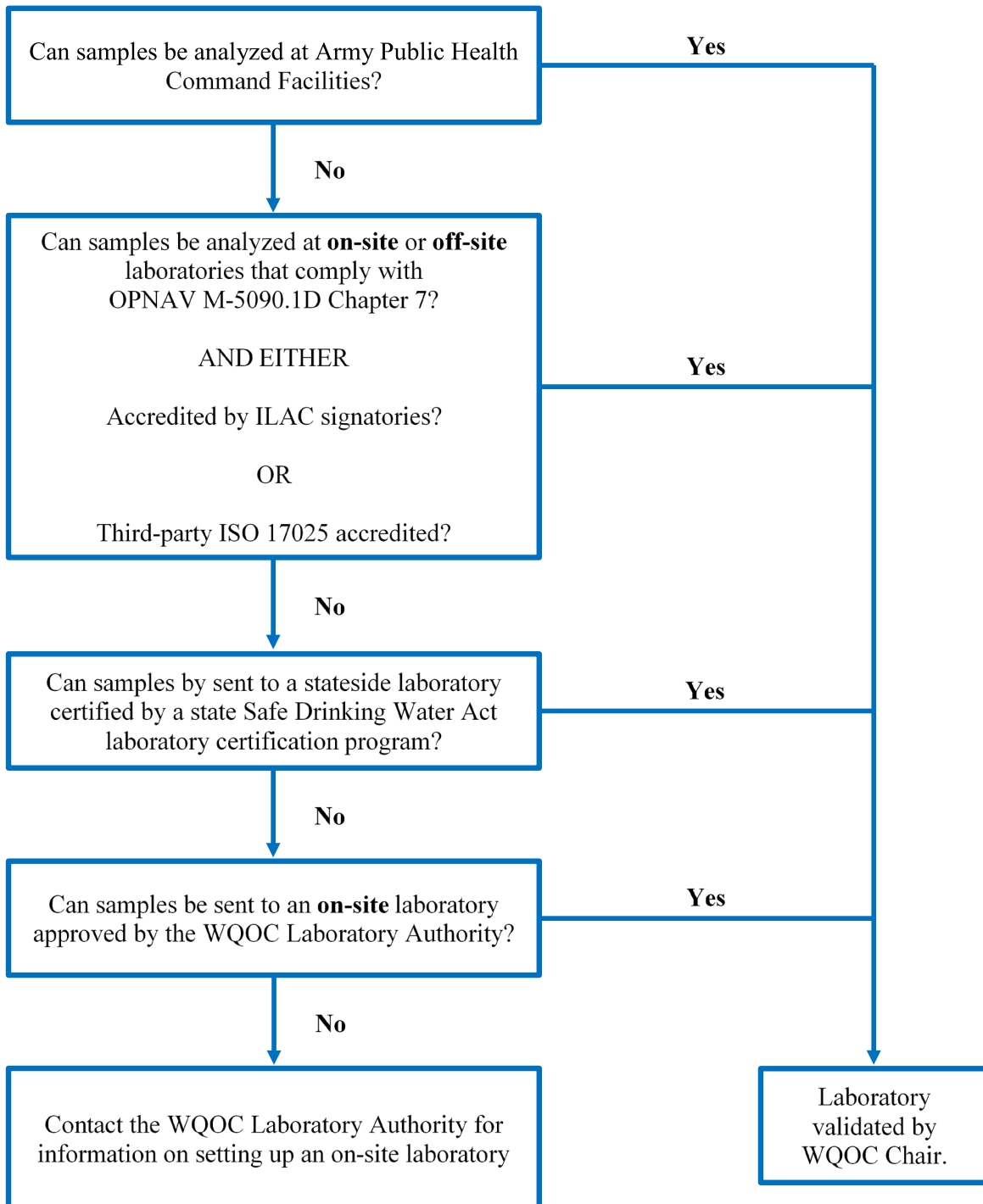


Figure J-1. Laboratory Decision Tree

This Page Intentionally Left Blank

APPENDIX K
OVERSEAS DRINKING WATER LABORATORY APPROVAL PROCESS

This section applies to non-U.S. Army Public Health Center (PHC) laboratories, or laboratories that are not third-party accredited.

1. ODW Laboratory Approval Program. The WQOC Laboratory Authority may approve laboratories that do not meet the accreditation requirements listed in Chapter 4. See Appendix L for a diagram showing the three stages of the ODW Laboratory Approval Process: initiation, verification and maintenance.

a. Individuals and Organizations Responsible for the Approval Process

(1) WQOC Laboratory Authority

(a) Responsible for approving non-accredited Installation Compliance Laboratories. The WQOC Laboratory Authority may also assess and approve 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, data audits).

(e) Information to review prior to an on-site assessment.

(f) Preparation of reports, including assessments, findings and recommendations related to laboratory QA and approval status.

(4) Development and provision of guidelines, forms and checklists to help the RWQB, 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 and classify 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 POA&M for addressing deficiencies to the WQOC Laboratory Authority, which must approve the POA&M to maintain interim approval.

(3) Not Approved. A laboratory that has significant deficiencies, has not implemented an active corrective action plan 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.

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. Laboratories will have 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) QA 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 options to fill QA manager positions, as well as additional requirements. The QA Manager and Laboratory Manager may be the same individual; however, they cannot analyze compliance samples for drinking water.

(a) QA manager positions will be filled via one of the following options:

1. A regional full-time equivalent, who serves, for a percent of their time, as QA manager for installation compliance laboratories in the applicable region. The regional QA manager will conduct on-site visits at each installation compliance laboratory at least once a year, and perform an annual internal assessment on each laboratory, as required by subparagraph 5.d.(10)(a).

2. An installation-specific compliance laboratory QA manager is the preferred option of the installation compliance laboratory. Installation-specific QA managers must also perform annual internal assessments of the on-site installation compliance laboratory.

3. 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) Installation QA managers may also serve in the role of a regional QA manager, provided that the chain of communication and authority are properly defined in regional policy.

(c) 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).

(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) DoD Contracting Policies. Additional information can be found in reference (m). Laboratories are required to comply with the prohibitions identified in the DoD Quality System Manual. These include the following prohibited practices:

- (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 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 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 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 on a case-by-case basis. RWQBs wishing to have methods from a laboratory evaluated for equivalency will submit the methods in English to the WQOC Laboratory Authority for review.

b. Proficiency Testing Samples

(1) Drinking water 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 to maintain approval. 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 approved signatory.

(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. 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.

(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.

(5) If the approved laboratory consistently does not analyze the PT samples within the acceptance limits, and it does perform and accept the appropriate corrective action, the WQOC Laboratory Authority may revoke 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. However, 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 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 NAVSEA Laboratory Quality and Accreditation Office 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. External assessments will be every two years at a minimum.

(3) 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.

(4) 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) Navy-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 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 revoke approval.

(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. 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) For interim approved laboratories, failure to successfully analyze a PT sample, or any other unknown test sample for a particular contaminant within the acceptance limits specified.
- (5) For interim approved laboratories, failure to satisfy that the laboratory has implemented and evaluated corrective actions from deviations identified during on-site assessments.
- (6) For interim approved laboratories, persistent 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 an MCL will be reported within five business days to allow 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 successfully analyze a PT sample at least annually within the specified acceptance criteria.

(11) Failure of an approved laboratory 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).

(12) Failure to demonstrate that the laboratory is maintaining the required standard of quality, based upon an on-site assessment or data calls.

(13) Failure to report compliance data to the ODW system in a timely manner, thereby preventing compliance with regulations and endangering public health. Data that indicates an exceedance of a Maximum Contaminant Level (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.

4. 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 plan. The QA plan 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 plan. The laboratory QA manager will ensure the QA plan is reviewed and updated if necessary, or at least annually. The review must be documented. The plan will be submitted to the assessment team for review prior to the on-site visit. All laboratories must maintain copies of QA plans (including SOPs) in English and the host nation language.

c. The laboratory QA plan will be a separately prepared document. However, documentation for many of the listed QA plan items may be referenced to the appropriate sections of this manual, the laboratory's SOPs, or other literature.

d. At a minimum, each Quality Management System 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) 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.

(e) 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) SOPs 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 laboratory and 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 (u).
- (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 validation 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, Validation and Reporting. Describe the following conditions:

(a) Documentation of calculations for generating and reporting data results.

(b) Data validation 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 QC 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 will include or reference Chapters 4 and 5 of reference (u), which contain detailed information on QC checks for chemistry and microbiology.
- (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. External assessments will be performed by individuals and organizations described in Appendix K, subparagraphs 1.a. and 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.

This Page Intentionally Left Blank

APPENDIX L
STAGES OF THE ODW LABORATORY APPROVAL PROCESS

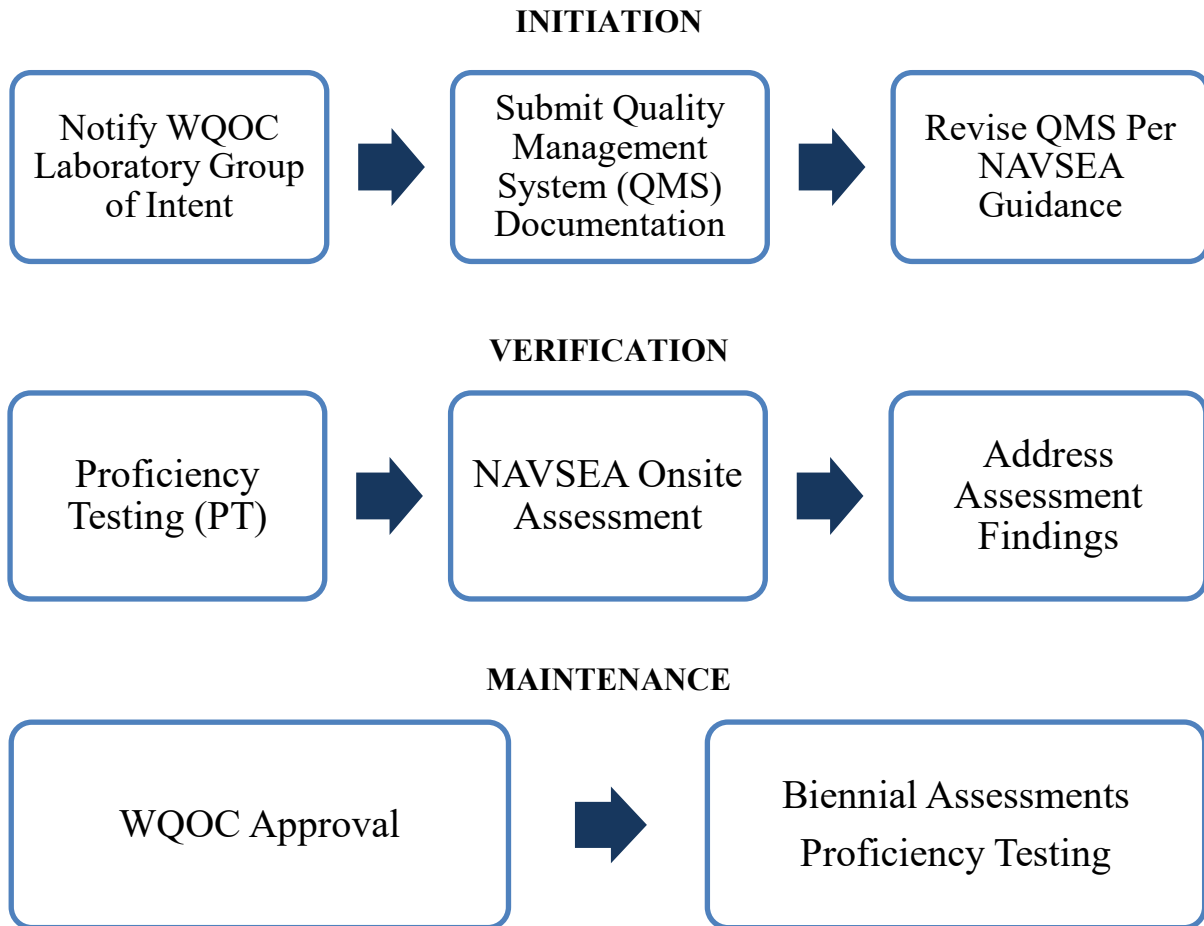


Figure L-1. Laboratory Approval Process

This Page Intentionally Left Blank

APPENDIX M
ORC AND AORC CERTIFICATION PROCESS

ORC and AORC Certification Process
First Step
<ul style="list-style-type: none"> • Installation <ul style="list-style-type: none"> ○ Identifies candidates for Operator Responsible in Charge (ORC) and Assistant Operator Responsible in Charge (AORC) • 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 Regional 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 PW 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

ORC and AORC 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 N
ORC AND AORC EDUCATION AND EXPERIENCE REQUIREMENTS

ORC/AORC Education and Experience Requirements		
Education	Experience	Training and Exam
ORC and AORC 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 experience at a water treatment facility; AND Be an existing employee at the treatment facility	Satisfactorily completed a Level I training course and exam provided by the Navy Operator Certification Authority (NOCA) Board
High school diploma, GED or equivalent	One year of acceptable experience at a water treatment facility; AND Be an existing employee at the treatment facility	
ORC and AORC 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 treatment level experience at a water treatment facility; AND Be an existing employee at the treatment facility	Satisfactorily completed a Level II training course and exam provided by the NOCA Board
Be a high school graduate or equivalent	Three years of acceptable treatment level experience at a water treatment facility; AND Be an existing employee at the treatment facility	
ORC and AORC 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 treatment level experience at a treatment facility; AND Be an existing employee at the treatment facility	Satisfactorily completed a Level III training course and exam provided by the NOCA Board
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 experience at a water treatment facility, including two years as Operator Responsible in Charge (ORC) or Assistant Operator Responsible in Charge (AORC); AND Be an existing employee at the treatment facility	
Be a high school graduate or equivalent	Ten years of acceptable experience at a water treatment facility including two years of ORC or AORC; AND Be an existing employee at the treatment facility	

ORC/AORC Education and Experience Requirements		
Education	Experience	Training and Exam
ORC and AORC Distribution 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 experience at a water distribution facility; AND Be an existing employee at the distribution facility	Satisfactorily completed a Level I training course and exam provided by the NOCA Board
High school diploma, GED, or equivalent	One year of acceptable experience at a water distribution facility; AND Be an existing employee at the distribution facility	
ORC and AORC 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 distribution experience at a water distribution facility; AND Be an existing employee at the distribution facility	Satisfactorily completed a Level II training course and exam provided by the NOCA Board
Be a high school graduate or equivalent	Three years of acceptable distribution level experience at a water distribution facility; AND Be an existing employee at the distribution facility	
ORC and AORC 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 distribution level experience at a distribution facility; AND Be an existing employee at the distribution facility	Satisfactorily completed a Level III training course and exam provided by the NOCA Board
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 experience at a water treatment facility including two years of ORC or AORC; AND Be an existing employee at the treatment facility	
Be a high school graduate or equivalent	Ten years of acceptable experience at a water treatment facility including two years of ORC or AORC; AND Be an existing employee at the treatment facility	

APPENDIX O
LIST OF FORMS

1. The following forms can be found on the CNIC G2 website at:
<https://g2.cnic.navy.mil/tscnichq/N4/N45/ODW/Shared%20Documents/Forms/AllItems.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. Technical Advisory Board Submittal Request
 - j. Water System Description Form
 - k. Water System Sanitary Survey Checklist
 - l. Certificate to Operate Review Comments Template
 - m. Exam and Certification Application
 - n. Certification Renewal Application
 - o. Proctor Policy
 - p. Professional Development Approved Courses
 - q. Professional Development Training Course Approval Application
 - r. Water Treatment Facility Classification Point System
 - s. Water Distribution Facility Classification Point System

This Page Intentionally Left Blank

APPENDIX P 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 shall consist of performance of operational duties for Navy drinking water systems. Experience shall be in drinking water distribution or treatment facility operation, water laboratories, water pumping stations, water system design and engineering, surface water facilities, or wells. All related knowledge and experience shall 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 shall 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 (SS)-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 Responsible in 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 facility 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.

Bulk Water. A volume of water intended for fit 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 in accordance with 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 G 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 instruction, refers to the Navy EA for Drinking Water Ashore (Commander, Navy Installations Command).

Exemption. Permanent relief from a requirement, which must be obtained through an established process.

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 sampling 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 CO. Denotes the Commander of a CNIC installation, abbreviated as installation CO. As used in this instruction, 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, the Installation Environmental Program Manager (lead POC) and all applicable representatives from the installation Public Works Department, the ORC for Treatment and Distribution, a representative from local PMA, and the installation PAO. These are required members only; other adhoc 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.

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 (MRDLG). The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs 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 (MSD). Water quality data from a sample taken by the Preventive Medicine Authority (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.

Navy Lead Executive Command (LEC). 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.

Operator. An individual who works under the direct supervision of the ORC or AORC, or assists with the operation of a water treatment plant or water distribution system.

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 (h).

Overseas Drinking Water (ODW) 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. At installation level is generally the Navy Environmental Health Officer (EHO), or Navy Preventive Medicine Technician (PMT) when an EHO 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 Control (QC). The overall system of technical activities that measures the attributes and performance of a process, item or service against defined standards to verify that they meet the requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality; and the system of activities and checks used to ensure that measurement systems are maintained within prescribed limits, providing protection against "out of control" conditions and ensuring that the results are of acceptable quality.

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.

Regional N4. Director of Facilities and Environmental Programs for a Navy Region.

Regional 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 Preventive Medicine Authority, Region Public Affairs Office, 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. 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, BUMED

HQ, Navy and Marine Corps Public Health Center, NAVFAC Atlantic and Pacific, and NAVFAC Engineering and Expeditionary Warfare Center. 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. 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 the water quality requirements. The WQOC Laboratory Authority is comprised of five or more members from CNIC, NAVFAC, BUMED and NAVSEA's Laboratory Quality and Accreditation Office. Members are nominated by their respective commands, and are designated by the WQOC Chair.

This Page Intentionally Left Blank