

CNIC M-5090.1
29 Jun 2018

**NAVY OVERSEAS
DRINKING WATER
PROGRAM ASHORE
MANUAL**

CNIC M-5090.1
29 Jun 2018

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DEPARTMENT OF THE NAVY
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CNIC M-5090.1
N4
29 Jun 2018

CNIC MANUAL 5090.1

From: Commander, Navy Installations Command

Subj: NAVY OVERSEAS DRINKING WATER PROGRAM ASHORE

Ref: See Appendix A

1. Purpose. To establish the Navy Overseas Drinking Water Program and therefore improve management of drinking water delivery to ensure the quality of drinking water at Navy overseas installations as directed by references (a) and (b). Commander, Navy Installations Command (CNIC), serving as the Navy Executive Agent for Drinking Water Ashore as assigned in reference (c), directs adherence with this manual and the requirements contained therein as the standards for overseas installations to adopt and implement. The requirements of this manual are modeled after U.S. drinking water policy and are enforced by CNIC via the Navy's Overseas Water Quality Oversight Council.
2. Scope and Applicability. This instruction applies to all CNIC Headquarters and Regions.
3. Records Management. Records created as a result of this instruction regardless of media and format, will be managed per SECNAV M-5210.1 of January 2012.
4. Review and Effective Date. Per OPNAVINST 5215.17A, CNIC (N4) will review this manual annually around the anniversary of its issuance date to ensure applicability, currency and consistency with Federal, Department of Defense, Secretary of the Navy and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This manual will be in effect for 10 years, unless revised or cancelled in the interim and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the manual is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.

5. Forms and Information Management Control. Forms mandated by this manual are listed in Appendix M.



M. M. JACKSON

Releasability and distribution:

This manual is cleared for public release and is available electronically only via CNIC G2, <https://g2.cnic.navy.mil/CC/Documents/Forms/Directives%20Only.aspx>.

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ACRONYMS

A/E	Architect/Engineer
AORC	Assistant Operator in Responsible Charge
BOSC	Base Operating Support Contract
BUMED	Bureau of Medicine and Surgery
CCR	Consumer Confidence Report
CFR	Code of Federal Regulations
CNIC	Commander, Navy Installations Command
CNO	Chief of Naval Operations
CO	Commanding Officer
CTC	Certificate to Operate
DBP	Disinfection Byproducts
DDBP	Disinfectant Residuals and Disinfection Byproducts
DPD	Diethyl-P-Phenylenediamine
EA	Executive Agent
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPR	Environmental Portal
EXWC	Expeditionary Warfare Center
FAC	Free Available Chlorine
FBR	Fractured Bedrock
FC	Fecal Coliform

FEC	Facilities Engineering Command
FFHC	Fit for Human Consumption
FGS	Final Governing Standards
FY	Fiscal Year
GWUDI	Groundwater Under the Direct Influence
HQ	Headquarters
ICTO	Interim Certificate to Operate
ILAC	International Laboratory Accreditation Cooperation
ISO	International Standards Organization
IWQB	Installation Water Quality Board
LANT	Atlantic
LEC	Lead Environmental Component
LQAO	Laboratory Quality and Accreditation Office
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MPA	Microscopic Particulate Analysis
MRDLG	Maximum Residual Disinfectant Level Goal
MSD	Medical Surveillance Data
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
NMCPHC	Navy and Marine Corps Public Health Center

NOCA	Navy Operator Certification Authority
NSF/ANSI	National Sanitation Foundation/American National Standards Institute
NTE	Not to Exceed
ODW	Overseas Drinking Water
OIC	Officer in Charge
OPNAV	Office of the Chief of Naval Operations
ORC	Operator in Responsible Charge
PA	Preliminary Assessment
PAC	Pacific
PAO	Public Affairs Office
PER	Preliminary Engineering Report
PHC	Public Health Center
PIP	Physical Inspection Program
PMA	Preventive Medicine Authority
POAM	Plan of Action and Milestones
POC	Point of Contact
PT	Proficiency Testing
PWO	Public Works Officers
PWS	Public Water Systems
QA	Quality Assurance
QC	Quality Control
REGCOM	Region Commander

RFI	Request for Information
RWQB	Regional Water Quality Board
SDS	Safety Data Sheet
SDWA	Safe Drinking Water Act
SECNAV	Secretary of the Navy
SWT	Surface Water Treatment
SWTR	Surface Water Treatment Rule
TAB	Technical Advisory Board
TC	Total Coliform
UFC	Unified Facilities Criteria
UG	User's Guide
VCNO	Vice Chief of Naval Operations
WQOC	Water Quality Oversight Council
XO	Executive Officer

CHAPTER 1
PROGRAM MANAGEMENT AND OVERSIGHT

1. General

a. In January 2009, the Naval Inspector General published reference (d) which identified multiple concerns including the quality of drinking water at overseas Navy installations and drinking water system operation, maintenance, operator training, oversight and existing standards. In response, SECNAV issued reference (a), which directed that Navy personnel at all overseas installations receive the same quality of drinking water as personnel do in the United States. The CNO reinforced the SECNAV directive through reference (b) further directing establishment of procedures and protocols to ensure overseas installations have drinking water meeting or exceeding U.S. standards.

b. The ODW Program improves management of drinking water delivery and ensures quality of drinking water provided at Navy overseas installations. Under the authority designated in reference (e) and as assigned in references (f) and (g), CNIC, as the Navy Shore Integrator and as the Navy Executive Agent (EA) for drinking water quality matters for all Navy shore facilities and installations world-wide (as assigned in reference (c)), establishes this program and requirements for all overseas Navy installations and facilities. This includes installation and facility budget submitting offices (BSO) not under the administrative control of CNIC and that are operated by or under the control of the Installation Commanding Officer (CO).

c. Management and oversight over the Navy ODW Program remains at CNIC Headquarters, as the Navy EA for drinking water quality matters for all Navy shore facilities and installations world-wide. The Navy's Program is modeled after U.S. Environmental Protection Agency (EPA) national policy and state regulatory programs. Primary enforcement authority or "primacy" rests with CNIC headquarters. The Navy ODW Program must comply with Navy regulations and responsible personnel within the program must observe the chain of command. The program is organized to ensure oversight at multiple levels as is described in paragraph 4.

2. Purpose

a. This manual describes a clear standard, able to be implemented overseas, that meets SECNAV and CNO direction and fills latency gaps that exist in references (c) and (h) and in host nation Final Governing Standards (FGS). The 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 CNIC for formal distribution and this manual will be updated as needed.

b. This manual establishes the Navy ODW Program, describes the responsibilities of CNIC as Navy EA for drinking water quality matters within the program and establishes program oversight to the WQOC. Both 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 (POC) for all matters related to drinking water systems at Navy installations. The WQOC serves as the entity responsible for management of the 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 (h); country-specific Environmental FGS; and other applicable requirements, such as international agreements, in-theater commander directives and DoD and service policies as applicable.

3. 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 installations and their properties are also termed “overseas installations.” These include installations 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 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 (i), 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 includes 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.

4. Organization

a. Water Quality Oversight Council. Per reference (c), CNIC is the Navy EA and provides overall program authorities. The Navy WQOC is the overall governing body and reports on a regular basis to the Navy EA. The WQOC is permanently chaired by the Director, Facilities and Environmental (CNIC N4). Standing members include representatives from CNIC, Naval Facilities Engineering Command (NAVFAC) Headquarters (HQ) Environmental and Public Works, BUMED HQ, Navy and Marine Corps Public Health Center (NMCPHC), NAVFAC Atlantic and Pacific Environmental and Public Works and NAVFAC Engineering and Expeditionary Warfare Center (EXWC). The WQOC convenes on a regular basis, determines overarching policies and makes associated decisions and actions to report to the Navy EA. Figure 1-1 illustrates the program's structure and organization. Further details on WQOC responsibilities are outlined in subparagraph 5g and reference (j).

b. Region Water Quality Board. Each Navy Region overseas or with overseas installations will establish a Navy Region Water Quality Board (RWQB). The RWQB will be chaired by the Region Commander (REGCOM) (not a designee). Required standing members are the Region (N4) and (N45) (Environmental Readiness Division), representatives from the Region N45/Environmental office, NAVFAC Facilities Engineering Command (FEC) Public Works Business Line (Utilities and Facilities) and Environmental Business Line, Navy Region Preventive Medicine Authority (PMA), Region Public Affairs Office (PAO) and Region Counsel. 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. Overseas installations will establish Installation Water Quality Boards (IWQB). Required 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 Operator in Responsible Charge for Treatment and Distribution, a representative from local PMA and the installation PAO. Other ad hoc members may be added as needed. The IWQB will be chaired by the Installation CO (not a designee). 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.

d. Navy Operator Certification Authority. The Navy Operator Certification Authority (NOCA) Board provides oversight of matters relating to qualifications, experience, training, education, examination and certification of operators of water treatment and distribution facilities to ensure protection of public health and ensure Navy ODW systems are properly operated, maintained and managed. The NOCA Board comprises five members, one of whom acts as Chairperson. Members are nominated by CNIC Region (N4) and are selected by a panel chaired

by the WQOC Chair. Further details on NOCA Board responsibilities are outlined in reference (k).

e. WQOC Laboratory Authority. The WQOC 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. The WQOC Laboratory Authority comprises five or more members from CNIC, NAVFAC, BUMED and NAVSEA's Laboratory Quality and Accreditation Office (LQAO). Members are nominated by their respective commands and are designated by the WQOC Chair.

f. Technical Advisory Board. The ODW Technical Advisory Board (TAB) will serve as the technical authority for the Navy ODW Program for matters of infrastructure, planning, design, construction, operations and related regulatory matters. The TAB will formally advise the WQOC Chair on technical and regulatory matters. The TAB works in conjunction with the NOCA, Laboratory Authority and other authorities established by the WQOC as needed to avoid duplication of efforts. Further details on TAB responsibilities are outlined in reference (l).

5. Responsibilities

a. DoD Lead Environmental Component. Responsibilities of the Lead Environmental Component (LEC) are promulgated in reference (i). The LEC will ensure that they maintain their duties independent of compliance with the Navy ODW Program requirements and are aware that these requirements are Navy specific.

(1) Establish and maintain DoD Environmental FGS for their respective areas of responsibility where applicable.

(2) Provide consultation for and adjudicate issues of applicability and other policy matters, including waivers and technical guidance for FGS and reference (h) requirements for drinking water.

b. Deputy Chief of Naval Operations (Fleet Readiness and Logistics)

(1) Develop and maintain overall Navy drinking water policy per reference (i), to include overall policy for ODW.

(2) Assess overseas drinking water resource requirements submitted by the BSOs.

(3) Communicate and report significant ODW issues, to include the Annual Drinking Water Quality Report to the Vice Chief of Naval Operations (VCNO) and the Assistant Secretary of the Navy Energy, Installations & Environment (ASN EI&E) as appropriate.

c. CNIC

(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 EA per reference (c).

(a) Serve as the single POC on all matters related to ODW systems ashore.

(b) Provide safe drinking water to Navy personnel, including personnel overseas and in the United States.

(c) Provide an Annual Drinking Water Quality Report to the VCNO via Office of the Chief of Naval Operations, Fleet Readiness and Logistics (OPNAV N4) as defined in reference (c) 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.

d. NAVFAC

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

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

(3) Maintain drinking water information on the ODW Data Repository (refer to chapter 12 for details).

(4) Manage operation, maintenance, repair, monitoring, reporting and related aspects of the Navy ODW Program.

(a) Region FECs

1. Provide technical and managerial expertise to RWQB staff.

2. Assign the Region (N45) or Environmental Business Line Coordinator as the lead POC for the RWQB (may be delegated to the Region Environmental Drinking Water Program Manager).

3. Ensure coordination of drinking water program issues with Region Medical authorities, per reference (m).

(b) Installation Public Works Department

1. Provide technical and managerial expertise to IWQB staff.

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

3. Ensure coordination of drinking water program issues with installation medical authorities, per reference (m).

4. Ensure Public Works Officers complete minimum overseas drinking water training requirements as described in chapter 11 prior to assuming command.

e. BUMED

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

(2) Provide prompt public health assessments in the event of an exceedance of a Maximum Contaminant Level (MCL), Action Level or a 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

(1) Support the Navy's laboratory quality assurance program per reference (c).

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

g. Water Quality Oversight Council

(1) Develop and maintain ODW policy, including technical guidance, as promulgated by the Navy EA.

(2) Oversee and assess Navy ODW Program compliance, implementation, programming and budgeting.

(3) Oversee the NOCA, Laboratory Authority and TAB with the Chairs of each board reporting directly to the WQOC Chair.

(4) Provide consultation to overseas Navy Regions and installations on policy, technical and budgetary matters.

(5) Coordinate and report routine as well as critical Navy ODW Program matters, via the WQOC Chair, to the Navy EA and to OPNAV (N4) as appropriate via the Navy EA (CNIC).

(6) Conduct quarterly meetings or conference calls, to include Navy Regions with overseas installations and ODW Program stakeholders, to report on status of program development, implementation and compliance.

(7) Conduct routine reviews of IWQB and RWQB reporting, to include reviews of the monthly ODW Metrics Scorecard and Physical Inspection Program checklist submittal, the quarterly Requirements Plan of Action and Milestones (POAM) and reviews of external and internal environmental compliance audits and report to the Navy EA.

(8) Provide immediate, effective consultation and guidance to RWQBs and other stakeholders for matters that have the potential to threaten public health, including violations of primary drinking water requirement MCLs, found in chapter 2 or matters with the potential to negatively impact the delivery of safe, fully compliant drinking water.

(9) Define an enforcement protocol, which establishes the Navy ODW auditing program.

(10) Monitor future changes to U.S. drinking water standards applicable to Navy personnel at installations in the United States and apply them to Navy installations overseas.

h. Region Water Quality Board Chair

(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, 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 POAM and monthly ODW Metrics Scorecard.

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

(9) Oversee compliance with the requirements established in this manual.

(10) 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 MCLs (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.

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

(12) Evaluate installation compliance with this manual through internal annual environmental management system/environmental quality assessment audits and external triennial Sanitary Surveys.

i. Installation Water Quality Board Chair

(1) 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.

(2) Oversee compliance, implementation and reporting of Navy ODW Program requirements for the installation.

(3) 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.

(4) Complete minimum ODW training requirements, specified in chapter 11, as directed by CNIC and the Navy Region. Ensure operator personnel are properly trained and certified and IWQB staff are properly trained and qualified.

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

(6) 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.

(7) Submit end of year compliance data to the RWQB for inclusion into the Annual Drinking Water Quality Report to VCNO.

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

(9) Provide alternative drinking water supplies when needed.

(10) Oversee compliance with the requirements established in this manual.

(11) 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). Convene the IWQB to determine the proper response to the violation, to include public notification and determination of FFHC per chapter 5 and chapter 7 of this manual.

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

(13) Issue an Annual Consumer Confidence Report (CCR) per chapter 5 of this manual. Annual CCRs are required to be uploaded by 1 July for the previous calendar year.

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

j. WQOC Laboratory Authority

- (1) Implement chapter 4 of this manual and the laboratory approval process with CNIC, NAVFAC, BUMED and NAVSEA LQAO.
- (2) Define criteria for approval of overseas laboratories and establish laboratory policy.
- (3) Define minimum criteria for installation bench laboratories.
- (4) Evaluate laboratory data reports, sampling analysis conducted at installations and annual proficiency testing results submitted by approved laboratories.
- (5) Provide technical support to the WQOC on water quality sampling and testing issues.
- (6) Serve as technical support to the WQOC on drinking water laboratory matters.
- (7) Track updates and revisions to reference (p) to develop implementation guidance and requirements as appropriate.
- (8) Track updates to the National Environmental Laboratory Accreditation Conference Institute, National Environmental Proficiency Testing (PT) Program Drinking Water Fields of Proficiency Testing protocol and disseminate updated PT requirements as appropriate.
- (9) Track updates and revisions to U.S. EPA standards to revise requirements as appropriate.
- (10) Evaluate and approve requests from RWQB to use EPA-equivalent analytical methods from overseas laboratories.

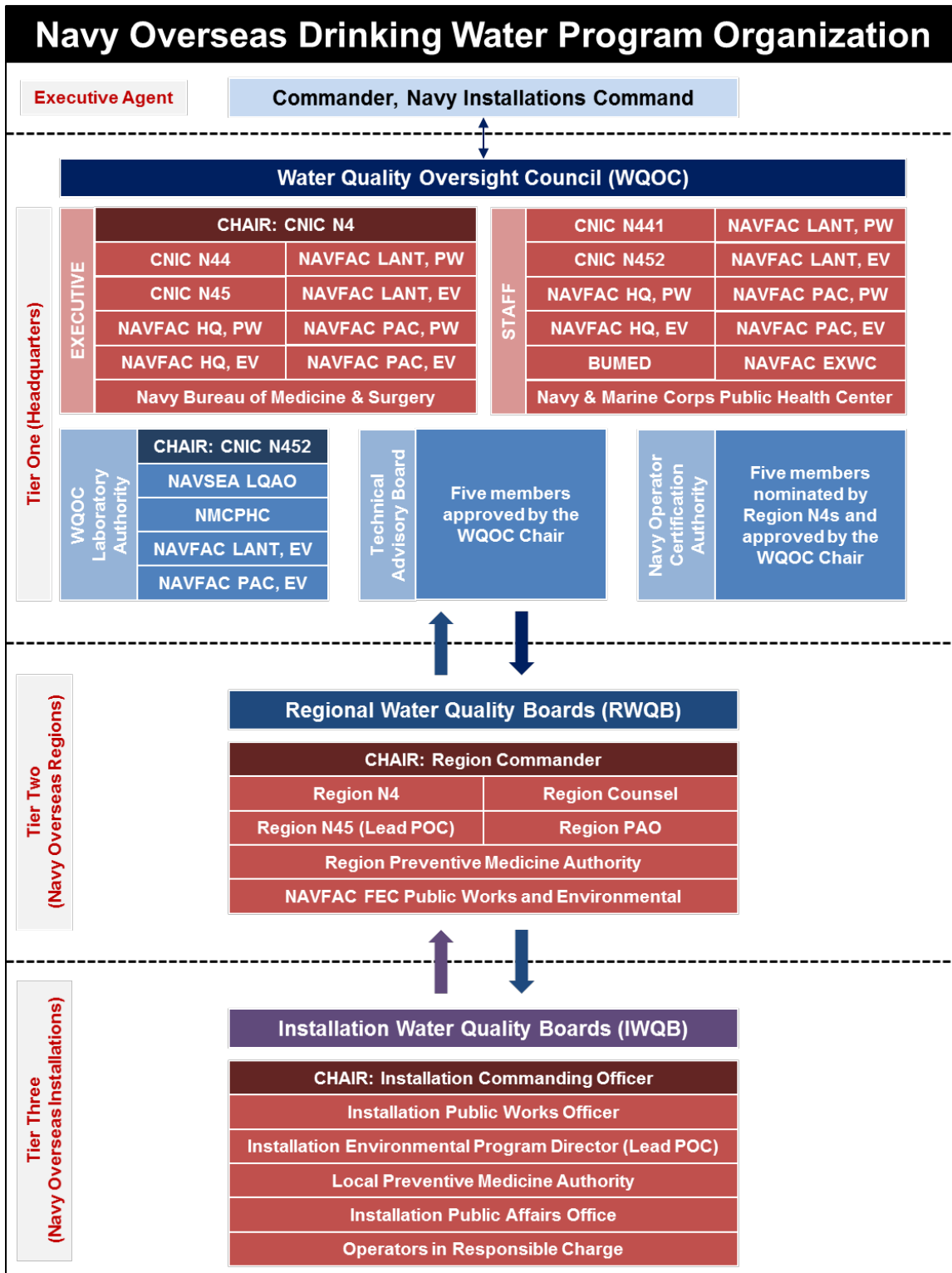


Figure 1-1. Navy Overseas Drinking Water Program Organization

CHAPTER 2
DRINKING WATER QUALITY STANDARDS

1. Purpose

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's Executive Agent for Drinking Water Ashore, Commander, Navy Installations Command, hereby references the National Primary Drinking Water Regulations (reference (q)) promulgated under reference (r) 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 (s) as amended by reference (r) and related regulations, as the U.S. standards applicable to all U.S. Navy installations overseas.

2. Requirements

a. The U.S. standards listed in this chapter do not replace requirements already in place. Overseas installations must continue to meet Environmental Final Governing Standards (FGS) and other applicable requirements, such as reference (h), international agreements, in-theater commander directives and Department of Defense (DoD) 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 standards' testing methodology requirements.

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

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

3. Referenced National Primary Drinking Water Regulations
 - a. Subpart A, General: 40 CFR 141.2 – Definitions
 - b. Subpart B, Maximum Contaminant Levels
 - (1) 40 CFR 141.11 – Maximum contaminant levels for inorganic chemicals
 - (2) 40 CFR 141.13 – Maximum contaminant levels for turbidity
 - c. Subpart C, Monitoring and Analytical Requirements
 - (1) 40 CFR 141.21 – Coliform sampling
 - (2) 40 CFR 141.22 – Turbidity sampling and analytical requirements
 - (3) 40 CFR 141.23 – Inorganic chemical sampling and analytical requirements
 - (4) 40 CFR 141.24 – Organic chemicals, sampling and analytical requirements
 - (5) 40 CFR 141.25 – Analytical methods for radioactivity
 - (6) 40 CFR 141.26 – Monitoring frequency and compliance requirements for radionuclides in community water systems
 - (7) 40 CFR 141.27 – Alternate analytical techniques
 - (8) Appendix A of Subpart C – Alternative Testing Methods Approved for Analyses Under the Safe Drinking Water Act
 - d. Subpart D, Reporting and Recordkeeping: 40 CFR 141.33 – Record Maintenance
 - e. Subpart E, Special Regulations, Including Monitoring Regulations and Prohibition on Lead Use
 - (1) 40 CFR 141.41 – Special monitoring for sodium
 - (2) 40 CFR 141.42 – Special monitoring for corrosively characteristics
 - (3) 40 CFR 141.43 – Prohibition on use of lead pipes, solder and flux
 - f. Subpart G, National Primary Drinking Water Regulations: Maximum Contaminant Levels and Maximum Residual Disinfectant Levels

- (1) 40 CFR 141.61 – Maximum contaminant levels for organic contaminants
 - (2) 40 CFR 141.62 – Maximum contaminant levels for inorganic contaminants
 - (3) 40 CFR 141.63 – Maximum contaminant levels (MCLs) for microbiological contaminants
 - (4) 40 CFR 141.64 – Maximum contaminant levels for disinfection byproducts
 - (5) 40 CFR 141.65 – Maximum residual disinfectant levels
 - (6) 40 CFR 141.66 – Maximum contaminant levels for radionuclides
- g. Subpart H, Filtration and Disinfection
- (1) 40 CFR 141.70 – General requirements
 - (2) 40 CFR 141.71 – Criteria for avoiding filtration
 - (3) 40 CFR 141.72 – Disinfection
 - (4) 40 CFR 141.73 – Filtration
 - (5) 40 CFR 141.74 – Analytical and monitoring requirements
 - (6) 40 CFR 141.75 – Reporting and recordkeeping requirements
 - (7) 40 CFR 141.76 – Recycle provisions
- h. Subpart I, Control of Lead and Copper
- (1) 40 CFR 141.80 – General requirements
 - (2) 40 CFR 141.81 – Applicability of corrosion control treatment steps to small, medium-size and large water systems
 - (3) 40 CFR 141.82 – Description of corrosion control treatment requirements
 - (4) 40 CFR 141.83 – Source water treatment requirements
 - (5) 40 CFR 141.84 – Lead service line replacement requirements
 - (6) 40 CFR 141.85 – Public education and supplemental monitoring requirements

- (7) 40 CFR 141.86 – Monitoring requirements for lead and copper in tap water
- (8) 40 CFR 141.87 – Monitoring requirements for water quality parameters
- (9) 40 CFR 141.88 – Monitoring requirements for lead and copper in source water
- (10) 40 CFR 141.89 – Analytical methods
- (11) 40 CFR 141.90 – Reporting requirements
- (12) 40 CFR 141.91 – Recordkeeping requirements
- i. Subpart J, Use of Non-Centralized Treatment Devices
 - (1) 40 CFR 141.100 – Criteria and procedures for public water systems using point-of-entry devices
 - (2) 40 CFR 141.101 – Use of bottled water
- j. Subpart K, Treatment Techniques
 - (1) 40 CFR 141.110 – General requirements
 - (2) 40 CFR 141.111 – Treatment techniques for acrylamide and epichlorohydrin
- k. Subpart L, Disinfectant Residuals, Disinfection Byproducts and Disinfection Byproduct Precursors
 - (1) 40 CFR 141.130 – General requirements
 - (2) 40 CFR 141.131 – Analytical requirements
 - (3) 40 CFR 141.132 – Monitoring requirements
 - (4) 40 CFR 141.133 – Compliance requirements
 - (5) 40 CFR 141.134 – Reporting and recordkeeping requirements
 - (6) 40 CFR 141.135 – Treatment technique for control of disinfection byproduct (DBP) precursors
- l. Subpart P, Enhanced Filtration and Disinfection – Systems Serving 10,000 or More People

- (1) 40 CFR 141.170 – General requirements
- (2) 40 CFR 141.171 – Criteria for avoiding filtration
- (3) 40 CFR 141.172 – Disinfection profiling and benchmarking
- (4) 40 CFR 141.173 – Filtration
- (5) 40 CFR 141.174 – Filtration sampling requirements
- (6) 40 CFR 141.175 – Reporting and recordkeeping requirements

m. Subpart S, Ground Water Rule

- (1) 40 CFR 141.400 – General requirements and applicability
- (2) 40 CFR 141.401 – Sanitary surveys for ground water systems
- (3) 40 CFR 141.402 – Ground water source microbial monitoring and analytical methods
- (4) 40 CFR 141.403 – Treatment technique requirements for ground water systems
- (5) 40 CFR 141.404 – Treatment technique violations for ground water systems
- (6) 40 CFR 141.405 – Reporting and recordkeeping for ground water systems

n. Subpart T, Enhanced Filtration and Disinfection – Systems Serving Fewer than 10,000 People

(1) General Requirements

- (a) 40 CFR 141.500 – General requirements
- (b) 40 CFR 141.501 – Who is subject to the requirements of subpart T?
- (c) 40 CFR 141.502 – When must my system comply with these requirements?
- (d) 40 CFR 141.503 – What does subpart T require?

(2) Finished Water Reservoirs

- (a) 40 CFR 141.510 – Is my system subject to the new finished water reservoir requirements?

(b) 40 CFR 141.511 – What is required of new finished water reservoirs?

(3) Additional Watershed Control Requirements for Unfiltered Systems

(a) 40 CFR 141.520 – Is my system subject to the updated watershed control requirements?

(b) 40 CFR 141.521 – What updated watershed control requirements must my unfiltered system implement to continue to avoid filtration?

(c) 40 CFR 141.522 – How does the State determine whether my system's watershed control requirements are adequate?

1. The Installation Water Quality Board (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.

(4) Disinfection Profile

(a) 40 CFR 141.530 – What is a disinfection profile and who must develop one?

(b) 40 CFR 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 which reports the decision to the WQOC.

2. Upon request, the WQOC will provide guidance to the RWQB.

(c) 40 CFR 141.532 – How does my system develop a disinfection profile and when must it begin?

(d) 40 CFR 141.533 – What data must my system collect to calculate a disinfection profile?

(e) 40 CFR 141.534 – How does my system use this data to calculate an inactivation ratio?

(f) 40 CFR 141.535 – What if my system uses chloramines, ozone or chlorine dioxide for primary disinfection?

(g) 40 CFR 141.536 – My system has developed an inactivation ratio; what must we do now?

(5) Disinfection Benchmark

(a) 40 CFR 141.540 – Who has to develop a disinfection benchmark?

(b) 40 CFR 141.541 – What are significant changes to disinfection practice?

(c) 40 CFR 141.542 – What must my system do if we are considering a significant change to disinfection practices?

(d) 40 CFR 141.543 – How is the disinfection benchmark calculated?

(e) 40 CFR 141.544 – What if my system uses chloramines, ozone or chlorine dioxide for primary disinfections?

(6) Combined Filter Effluent Requirements

(a) 40 CFR 141.550 – Is my system required to meet subpart T combined filter effluent turbidity limits?

(b) 40 CFR 141.551 – What strengthened combined filter effluent turbidity limits must my system meet?

(c) 40 CFR 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 which reports the decision to the WQOC.

2. Upon request, the WQOC will provide guidance to the RWQB.

(d) 40 CFR 141.553 – My system practices lime softening – is there any special provision regarding my combined filter effluent?

(7) Individual Filter Turbidity Requirements

(a) 40 CFR 141.560 – Is my system subject to individual filter turbidity requirements?

(b) 40 CFR 141.561 – What happens if my system’s turbidity monitoring equipment fails?

(c) 40 CFR 141.562 – My system only has two or fewer filters – is there any special provision regarding individual filter turbidity monitoring?

(d) 40 CFR 141.563 – What follow-up action is my system required to take based on continuous turbidity monitoring?

(e) 40 CFR 141.564 – My system practices lime softening – is there any special provision regarding my individual filter turbidity monitoring?

(8) Reporting and Recordkeeping

(a) 40 CFR 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.

(b) 40 CFR 141.571 – What records 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.

o. Subpart U, Initial Distribution System Evaluations

(1) 40 CFR 141.600 – General requirements

(2) 40 CFR 141.601 – Standard monitoring (link to form in Appendix M)

(3) 40 CFR 141.602 – System specific studies

(4) 40 CFR 141.603 – 40/30 certification (link to form in Appendix M)

(5) 40 CFR 141.604 – Very small system waivers (link to form in Appendix M)

(6) 40 CFR 141.605 – Subpart V compliance monitoring location recommendations

p. Subpart V, Stage 2 Disinfection Byproducts Requirements

(1) 40 CFR 141.620 – General requirements

(2) 40 CFR 141.621 – Routine monitoring

(3) 40 CFR 141.622 – Subpart V monitoring plan

(4) 40 CFR 141.623 – Reduced monitoring

(5) 40 CFR 141.624 – Additional requirements for consecutive systems

(6) 40 CFR 141.625 – Conditions requiring increased monitoring

(7) 40 CFR 141.626 – Operational evaluation levels

(8) 40 CFR 141.627 – Requirements for remaining on reduced TTHM and HAA5 monitoring based on subpart L results

(9) 40 CFR 141.628 – Requirements for remaining on increased TTHM and HAA5 monitoring based on subpart L results

(10) 40 CFR 141.629 – Reporting and recordkeeping requirements

q. Subpart W, Enhanced Treatment for Cryptosporidium

(1) General Requirements: 40 CFR 141.700 – General requirements

(2) Source Water Monitoring Requirements

(a) 40 CFR 141.701 – Source water monitoring

(b) 40 CFR 141.703 – Sampling locations

(c) 40 CFR 141.704 – Analytical methods

1. The WQOC will authorize 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.

(d) 40 CFR 141.706 – Reporting source water monitoring results

(e) 40 CFR 141.707 – Grandfathering previously collected data

(3) Disinfection Profiling and Benchmarking Requirements

(a) 40 CFR 141.708 – Requirements when making a significant change in disinfection practice

(b) 40 CFR 141.709 – Developing the disinfection profile and benchmark

(4) Treatment Technique Requirements

(a) 40 CFR 141.710 – Bin classification for filtered systems

(b) 40 CFR 141.711 – Filtered system additional Cryptosporidium treatment requirements

(c) 40 CFR 141.712 – Unfiltered system Cryptosporidium treatment requirements

(d) 40 CFR 141.714 – Requirements for uncovered finished water storage facilities

(5) Requirements for Microbial Toolbox Components

(a) 40 CFR 141.715 – Microbial toolbox options for meeting Cryptosporidium treatment requirements

(b) 40 CFR 141.716 – Source toolbox components

(c) 40 CFR 141.717 – Pre-filtration treatment toolbox components

(d) 40 CFR 141.718 – Treatment performance toolbox components

(e) 40 CFR 141.719 – Additional filtration toolbox components

(f) 40 CFR 141.720 – Inactivation toolbox components

(6) Reporting and Recordkeeping Requirements

(a) 40 CFR 141.721 – Reporting requirements

(b) 40 CFR 141.722 – Recordkeeping requirements

r. Subpart Y, Revised Total Coliform Rule

(1) 40 CFR 141.852 – Analytical methods and laboratory certification

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

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

(2) 40 CFR 141.853 – General monitoring requirements for all public water systems

(3) 40 CFR 141.854 – Routine monitoring requirements for non-community water systems serving 1,000 or fewer people using only ground water

(4) 40 CFR 141.855 – Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water

(5) 40 CFR 141.856 – Routine monitoring requirements for subpart H public water systems serving 1,000 or fewer people

(6) 40 CFR 141.857 – Routine monitoring requirements for public water systems serving more than 1,000 people

(7) 40 CFR 141.858 – Repeat monitoring and *E. coli* requirements

(8) 40 CFR 141.859 – Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination

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

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

(c) Link to Level 1 and Level 2 Assessments Forms is provided in Appendix M.

(9) 40 CFR 141.860 – Violations

(10) 40 CFR 141.861 – Reporting and recordkeeping

4. Compliance with Surface Water Treatment Requirements

a. 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. Paragraphs 4b(1) through 4b(3) of this chapter 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 (i) and in DoD country-specific Environmental Final Governing Standards.

b. 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 in paragraphs 3g, 3k, 3l, 3n and 3q of this chapter. 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 paragraph 4a of this chapter, compliance may also be achieved following one of the courses of action noted in paragraphs 4b(1) through 4b(3) of this chapter. All courses of action require WQOC concurrence.

(1) 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.

(2) 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.

(3) In situations where overseas installations believe full compliance with the surface water treatment requirements noted above in paragraph 4b of this chapter is not possible, cannot be demonstrated or is not in the best interest of the Navy, alternate courses of action as detailed in paragraphs 4b(3)(a) and 4b(3)(b) below can be used to achieve compliance with Navy guidance, subject to review and approval from the WQOC. Compliance with 4b(3)(a) and 4b(3)(b) below constitutes SWT compliance for Navy ODW policy purposes.

(a) 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.

(b) 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.

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

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

b. "Lead free," for the purposes of this requirement and as established in reference (t), is defined in paragraphs 5b(1) and 5b(2) of this chapter as:

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

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

c. The weighted average lead content, described in paragraph 5b(2) of this chapter, of a pipe, pipe fitting, plumbing fitting or fixture must be calculated using the methods listed in paragraphs 5c(1) through 5c(5) of this chapter.

(1) 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.

(2) 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.

(3) The lead content of the material used to produce wetted components is used to determine compliance with paragraph 5b(2) of this chapter. For lead content of materials that are provided as a range, the maximum content of the range must be used.

(4) If a coating (defined in Appendix N) 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.

(5) If a liner (defined in Appendix N) 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.

d. NSF Standard 61 (Annex G)-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 fit for human consumption (FFHC) hauled drinking water delivery and dispenser servicing formerly established in the Containerized Water Policy. It covers supply, filling, transport, delivery, maintenance and re-use of portable drinking water containers from the drinking water plant or other official drinking water source to end-point distribution. This chapter is limited to hauled water transferred by or under the direction of, Navy Overseas Drinking Water (ODW) system water treatment and distribution operators. This chapter is not applicable when hauled water is used during tactical operations such as range training, nor does it apply to bottled water sold to the Navy or individuals. It is not applicable to point-of-use container filling stations available to general installation personnel. Unless otherwise specified, all other ODW policies apply to hauled water.

b. Drinking water is typically provided via approved distribution water systems that include direct connections from the water sources through any treatment plants, tanks, pumps stations or to the distribution mains that deliver drinking water to each service connection or facility. However, when a direct conveyance from a drinking water system is either temporarily interrupted to customers in an area or not available to customers (including those in remote areas), drinking water may be transferred to that area in containers and provided to customers as directed by the Installation Commanding Officer. 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 Regional Water Quality Board (RWQB) and the Water Quality Oversight Council (WQOC).

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

e. All such systems include the primary elements specified in paragraphs 1e(1) through 1e(3) of this chapter:

(1) A direct source of drinking water that is FFHC.

(2) An indirect (non-piped) means of transporting the water to another area.

(3) A means of delivering or providing the water to a customer or to 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. The responsibilities include the actions listed in paragraphs 2a(1) through 2a(4) of this chapter:

(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 of this chapter.

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

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

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

b. The RWQB is responsible for overseeing ODW compliance, implementation and reporting. These responsibilities include the actions listed in 2b(1) and 2b(2) of this chapter:

(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 is responsible for providing 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 Commanding Officer. In addition, 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 Water Quality Board (IWQB), 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 information specified in paragraphs 4b(1) through 4b(6) of this chapter:

(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 and 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 G before water hauling may resume. If multiple positive coliform samples continue to

be found 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 (Appendix M).

b. Free Chlorine Residual Monitoring. The free chlorine residual will be measured for every container of hauled water as defined in Appendices F and Q. 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 M). If a free chlorine residual of at least 1.0 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 1.0 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 1.0 mg/L and no more than 4.0 mg/L. Check for proper operation of backflow device(s) 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 1.0 mg/L and 4.0 mg/L.

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

d. In addition, 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 (Appendix M) which includes the information specified in paragraphs 7a(1) through 7a(4) of this chapter:

(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 M) quarterly to the Navy ODW Data Repository.

CHAPTER 4
LABORATORIES

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

2. Laboratory Accreditation and Selection. All laboratories analyzing drinking water samples must either be U.S. Army Public Health Center (PHC) laboratories (paragraph 4c of this chapter), third party accredited (paragraphs 4d and 4e of this chapter) or approved by the Water Quality Oversight Council (WQOC) Laboratory Authority (Appendix J). The WQOC Chair will validate all laboratories used for conducting analysis of drinking water samples.

a. Overseas installations will first attempt to use U.S. Army PHC laboratories.

b. If use of U.S. Army PHC laboratories is not a viable option, then installations will use third party accredited laboratories in one of the categories listed below:

(1) Laboratories accredited to ISO/IEC 17025 by International Laboratory Accreditation Cooperation (ILAC) Signatories.

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

c. When 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. See Appendix I for assistance with choosing an appropriate ODW laboratory. All laboratories that choose to go through the ODW Laboratory Approval Process (Appendix J) instead of pursuing accepted third party accreditation credentials will adhere to the requirements listed below:

(1) Use U.S. Environmental Protection Agency (EPA) or WQOC approved methods.

(2) Maintain staff with qualified personnel.

(3) Maintain a quality management system.

(4) Analyze proficiency testing (PT) samples (at least annually) for all parameters within the scope of their testing.

(5) Undergo a triennial on-site assessment by the WQOC Laboratory Authority.

(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 samples. These responsibilities include the actions specified below:

(1) Validate that overseas laboratory QA/QC requirements are equivalent for more stringent than, U.S. requirements and comply with the drinking water quality testing requirements of reference (c).

(2) Ensure, at a minimum, monthly reporting and communications to the WQOC Chair regarding overseas laboratory implementation.

(3) Define criteria for overseas laboratories to meet and establish laboratory QA/QC policies and guidance.

(4) Evaluate and review laboratory reports prepared at installations, PT results and any associated corrective actions submitted by approved laboratories. Monitor updates to PT protocols and disseminate updated PT requirements as appropriate.

(5) Provide technical support to the WQOC on water quality sampling and testing issues.

(6) Serve as technical expert to the WQOC on drinking water laboratory QA/QC process matters.

(7) Manage the ODW Laboratory Approval Process.

(8) Maintain 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) Propose and issue laboratory-related updates to Commander, Navy Installations Command (CNIC) instructions.

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

(11) Conduct triennial on-site assessment of overseas laboratories approved through the WQOC Laboratory Authority Approval Process (see Appendix J) for chemistry, microbiology,

radiochemistry and parasitology. This requirement does not apply to the U.S. Army PHC or validated third party accredited laboratories.

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

(13) Encourage Regions and installations to observe on-site assessments of their own laboratories as on-the-job training.

(14) Provide technical support on sampling for drinking water compliance samples.

b. Region Water Quality Board. The Region Water Quality Board (RWQB), with assistance from the WQOC Laboratory Authority, is responsible for working with installations to ensure that all laboratories meet the requirements of this chapter and notifying the WQOC Laboratory Authority of any issues that may arise. RWQB responsibilities include the actions specified below:

(1) Coordinate with installations and U.S. Army PHC for drinking water sampling and analysis work when practical.

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

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

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

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

(6) Communicate 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 Installation Water Quality Board (IWQB) is responsible for working with installations and notifying the RWQB of any issues that may arise. IWQB responsibilities include the actions specified below:

(1) When a Region-wide laboratory contract is not in place, work with the RWQB in developing contracts with U.S. Army PHC, other accredited laboratories or laboratories approved by the WQOC Laboratory Authority and validated by the WQOC Chair.

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

(3) Ensure that installation laboratories comply with this chapter and reference (c) through evaluation during internal environmental management system and environmental quality assurance audits.

(4) Assist with data calls and inform 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 listed in this section are NOT subject to the WQOC ODW Laboratory Approval Process in Appendix J. However, each IWQB is responsible for ensuring third party accredited laboratories are meeting the requirements listed below:

(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 equivalent methods will be evaluated by the WQOC Laboratory Authority on a case-by-case basis upon request from the RWQB. RWQB's wishing to have equivalent methods from a laboratory approved 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.

b. Revocation of Validation Status. In addition to the requirements for third party accredited laboratories listed above in paragraphs 4a(1) through 4a(6) of this chapter, both U.S.

Army PHC and third party accredited laboratories can have their validation status revoked for any of the reasons listed below:

- (1) Fail to maintain third party accreditation status.
- (2) Fail to satisfy that the laboratory is maintaining the required standard of quality, based upon an on-site assessment.
- (3) Fail 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 Maximum Contaminant Level (MCL), will be reported within five business days to allow preparation of mandated public notifications.
- (4) Falsify data or engage in other deceptive practices (e.g., reporting PT data from another laboratory as its own).
- (5) Fail to use the analytical methodology specified in chapter 2 or a WQOC-approved equivalent.
- (6) Fail to analyze a PT sample for a particular contaminant within the acceptance limits specified per the accreditation authority's requirements.
- (7) Fail to verify that the laboratory has corrected deviations identified during an on-site assessment.
- (8) Refuse to participate in an on-site assessment.
- (9) Fail to adhere to contract or agreement performance measures.

c. U.S. Army Public Health Center. Overseas installations must first attempt to use U.S. Army PHC laboratories if available. U.S. Army PHC has laboratories in the United States (Aberdeen, MD), Europe (Germany) and the Pacific (Japan). All U.S. Army PHC laboratories are accredited by the American Association for Laboratory Accreditation 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. Overseas Laboratories. For instances when the U.S. Army PHC cannot be selected, contracted off-site laboratories must comply with reference (c) 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 (u).

e. Contracted Stateside Laboratories. The WQOC Laboratory Authority will allow overseas installations to use stateside laboratories certified by state SDWA laboratory certification programs. (This is a separate approval process from the one described in Appendix J 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. To obtain approval, the laboratory must provide evidence of the stateside laboratory certification to the WQOC Laboratory Authority.

5. Installation Bench Laboratories. Installation laboratories meeting the definition of “Bench Laboratory” must comply with reference (c), complete annual PT samples for their 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 paragraph 4c of this chapter or Appendix J.

6. Records Management. The WQOC Laboratory Authority ensures that records for the ODW Laboratory Policy are uploaded to the Navy ODW Data Repository (see chapter 12). Records 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, Bench Laboratory and water plant will also maintain copies of all records for a minimum of five years.

CHAPTER 5
REPORTING REQUIREMENTS

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

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

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

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

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

d. The Navy Operator Certification Authority, 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 in paragraphs 3a through 3o of this chapter.

a. OSD Environmental Program Reporting. The Deputy Assistant Secretary of Defense for Environment, Safety and Occupational Health requires environmental program information to assess Department goals progress, fulfill congressional reporting requirements and to support policy development. This information directly supports the Fiscal Year Environmental Management Review and Defense Environmental Programs Annual Report to Congress. In support of this requirement, Navy drinking water data will be reported annually to the Office of the Chief of Naval Operations (OPNAV). This data will include all ODW water quality exceedances (as defined in paragraph 3n of this chapter), the associated population affected, the corrective actions and duration. IWQBs and RWQBs will report annually on the previous fiscal year through the Water Module on EPR Portal maintained by Naval Facilities Engineering Command (NAVFAC) Engineering and Expeditionary Warfare Center.

b. Navy Shore Drinking Water Quality Report. Per reference (c), each year CNIC will submit an annual report on the status of Navy shore facility and installation drinking water quality world-wide for the previous fiscal year to the Vice Chief of Naval Operations, via OPNAV (N4).

c. Navy ODW Requirements Plan of Action and Milestones. The Navy ODW Requirements Plan of Action and Milestones (POAM) tracks drinking water system deficiencies identified through Sanitary Surveys.

(1) The WQOC will add new deficiencies to the Navy ODW Requirements POAM 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 per the requirements listed in paragraphs 3d(1) through 3d(7) of this chapter.

(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 information listed in paragraphs 3d(3)(a) through 3d(3)(g) of this chapter.

(a) Source of the water delivered (e.g., surface water or ground water).

(b) Any significant sources of contamination in the source water and a brief summary of the system's susceptibility to potential sources of contamination. If water is being provided by a purveyor or city distributor, this information should be provided by the provider for inclusion.

(c) Parameters on contaminants regulated by the applicable Final Governing Standard, reference (h) and chapter 2 of this manual.

- (d) Articulate the water system's compliance with other drinking water requirements.
- (e) Provide an educational statement for vulnerable populations.
- (f) Provide educational information on nitrite, arsenic or lead in areas where these contaminants may be a concern.

(g) Provide phone numbers for additional sources of information including the installation Public Works Department 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 delivery methods listed below. The direct delivery requirement is in addition to the requirement to post the CCR on the CNIC-sponsored 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 methods below 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) URLs that do not take consumers directly to the entire CCR.

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

(8) The U.S. Environmental Protection Agency (EPA) provides guidance for water suppliers in the "Preparing your Drinking Water Consumer Confidence Report" document available at www.epa.gov/safewater/ccr/pdfs/guide_ccr_forwatersuppliers.pdf or review the www.ccriwriter.com website for formatting assistance.

e. System Inventory. IWQBs will regularly assess ODW system inventories, per reference (v). By 30 September, each year, IWQBs will report an official system inventory to the WQOC via the RWQB for review and approval. The inventory will reflect the drinking water systems in use by the installation during the current FY. If system inventories change during the FY, 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 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 9 for drinking water treatment chemical certification requirements.

g. Physical Inspection Program

(1) IWQBs will perform monthly physical inspections of each individual ODW system as required by the Physical Inspection Program (PIP) to address the infrastructural readiness and operational compliance aspects of drinking water utility systems. Monthly inspections will be based on the monthly checklist, quarterly checklist or the annual checklist in the PIP Report form (see Appendix M). The PIP addresses the drinking water system's management effectiveness in integrating these two aspects to achieve the objectives listed below:

(a) Maintain constant system readiness and compliance with operational and water quality standards.

(b) Ensure safety risks to public health and system operators are minimized.

(c) Ensure adequate preventive maintenance practices are implemented and timely execution of corrective maintenance occurs as required.

(2) IWQBs will incorporate infrastructural readiness as well as operational status data in the PIP Report Form to RWQBs and WQOC to gauge the operational conditions and effectiveness of each individual drinking water system. RWQBs will upload the infrastructural readiness and operational status data of the PIP Report Form from the IWQBs to the Navy ODW Data Repository by the 10th of each month and notify the WQOC when complete.

(3) Physical inspections of each individual ODW system are intended to cover the elements listed below:

(a) Infrastructural Elements

1. Production vs. Demand

2. Redundancy

3. Utilities Infrastructure Condition Assessment Program Risk Assessment Index
4. Preventive Maintenance Program
5. MAXIMO Service Call Tracking
6. Leak Detection Program

(b) Operational Elements

1. Daily Operations
2. Standard Operating Procedures
3. Backflow Prevention Program
4. Flushing Program

(c) Management Elements

1. Preventive Measures Implementation
2. Early Detection Measures Implementation
3. Self-corrective Action Execution
4. Infrastructure Trend Analysis
5. Operation Trend Analysis
6. Staffing Adequacy
7. NetOps

h. 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, Operator in Responsible Charge (ORC) updates, FY 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 POAM updates, CTO status, current issues, construction updates, PIP updates and any other relevant information.

i. 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, fit for human consumption 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 10th of each month and notify the WQOC when complete.

j. 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.

k. 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 outlined in reference (w) and will be made available for ad hoc reporting to the RWQB and WQOC. IWQBs will also upload operational data to the Navy ODW Data Repository monthly.

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

m. 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.

n. 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 Commanding Officer, 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 Headquarters (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 system(s) and site(s) 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.

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 contain:

- (1) Water system(s), site(s) and population(s) 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. If an installation water system does not meet the required primary drinking water standards, thus exceeding the established MCLs and resulting in a non-compliance, the installation will implement the public notification process as defined in reference (x) which is required by reference (c). This does not obviate the existing requirements to meet Final Governing Standards, 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 Commanding Officer (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 unfit for human consumption following this consultation, an alternate water source will be provided.

CHAPTER 6 ENFORCEMENT

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

2. Compliance Evaluation. Navy installations overseas will use compliance evaluation mechanisms such as internal and external Environmental Management System/Environmental Quality Assessments, Sanitary Surveys, 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 (c), to those systems identified as part of the Navy ODW Program.

3. Compliance Order

a. The WQOC will determine non-compliance and may issue a compliance order through the chain of command to the Region Water Quality Board (RWQB) for an installation in its area of responsibility.

b. The compliance order will include the reason or reasons for the order, the requirements or conditions that must be met to rescind the order and request a Plan of Action and Milestones (POAM) 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.

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

4. Variations. Installation Water Quality Boards may request variations from the requirements in this manual, references (y) and (z) to help achieve ODW compliance. Variations allow eligible systems temporary ODW policy nonconformity on the condition that the drinking water quality is still protective of public health and maintains compliance with the reference (h) and host nation Final Governing Standards. Variations from provisions of ODW requirements may be granted by CNIC, as the Navy Executive Agent (EA), except for any variations from maximum contaminant level or treatment technique requirements.

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 EA, who will be the final signatory to endorse recommendations.

b. Requests for variances should include, at a minimum, the information specified below:

(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(s) by which the installation will achieve compliance with the requirements in this manual, references (y) and (z).

(4) A compliance plan detailing the method(s) by which the installation will achieve compliance with the requirements in this manual, references (y) and (z).

CHAPTER 7
DETERMINATION OF FIT FOR HUMAN CONSUMPTION

1. General. The Navy Overseas Drinking Water (ODW) Program will use of the term “fit for human consumption” vice “potability” for water quality policy matters. Fit for human consumption (FFHC) is the term used by the Navy Bureau of Medicine and Surgery, defined in reference (aa) 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 (h) and Final Governing Standards (FGS) define “potable water” as water that has been examined and treated to meet the drinking water standards as defined in the respective documents and approved as potable by the appropriate Department of Defense medical authority.

2. Procedure

a. An ODW system is FFHC if it meets the required primary drinking water quality standards, which are the health based Maximum Contaminant Level (MCL) requirements, as defined in FGS, reference (h) and chapter 2 of this manual. This statement aligns with U.S. 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 (h) 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 (h) and chapter 2 of this manual.

c. The Installation Water Quality Board (IWQB), chaired by the Installation Commanding Officer (CO), will review installation water quality data. The installation will submit all water quality data on the Navy ODW Data Repository. The Installation CO certifies the system as FFHC based on consultation with medical authority and recommendation of the IWQB.

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

e. An ODW system is not FFHC if it does not meet the required primary drinking water quality standards, which are the health based MCLs.

f. At a minimum, the communication specified below should be followed 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 (h) requirements.

(2) After IWQB consultation, the Installation CO must inform the Region Water Quality Board (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 desires to challenge a determination made by the Installation CO, the matter will be taken to Commander, Navy Installations Command, as the Navy Executive Agent for Drinking Water Ashore, for adjudication.

g. The only exception to bypassing the communication process described in paragraph 2f of this chapter would be in matters of immediate public health concern, for which the Operator in Responsible Charge, Public Works Officer, Installation CO or Region Commander 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 paragraph 2f of this chapter must still take place once the emergency response is underway.

CHAPTER 8
SANITARY SURVEY EXECUTION

1. General

a. Sanitary surveys of Navy overseas drinking water (ODW) systems will be conducted under the authorization of the WQOC following the criteria of reference (y).

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 Survey Team. The sanitary survey team will consist of the members defined below:

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

b. 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.

c. Navy Medicine Surveyor. A representative from Navy and Marine Corps Public Health Center or Navy Bureau of Medicine and Surgery assigned to perform the medical asset component of the inspection.

d. Laboratory Authority Surveyor (as needed). A representative from Naval Sea Systems Command assigned to perform the laboratory assessment component of the survey if the installation uses an on-site drinking water laboratory.

3. Roles and Responsibilities. Below describes the responsibilities of sanitary survey team members, including official members and observers.

a. Sanitary Survey Team Lead

(1) Represents the regulatory authority on the sanitary survey team.

(2) Completes sanitary survey training or other equivalent on-the-job training prior to acting as Team Lead.

(3) Acts only in a regulatory authority role and does not exercise other job responsibilities, such as reach back support, while serving as Team Lead.

(4) Ensures the sanitary survey focuses on the task of documenting deficiencies throughout the field work process.

(5) Advise the observers on limits of engagement with the sanitary survey team.

(6) Ensure the number of observers is considerate of the host installation size.

(7) Coordinates and schedules meetings, on-site interviews and facility inspections between the survey team members and the installation.

(8) Arranges and participates in a kick-off conference call/meeting with the installation to discuss project logistics, coordination requirements, project schedule, data/information needs and preparation of on-site sanitary survey inspections.

(9) Prepares the sanitary survey team's request for information (RFI), tracks and reviews RFI response from the installation.

(10) Prepares and presents the in-brief and out-brief (associated with the field work) to the installation.

b. Navy Medicine Surveyor

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

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

c. Laboratory Authority Surveyor

(1) 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.

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

d. Architect/Engineer (A/E) Contractors. Generate documentation of the sanitary survey assessment per the contract scope of work and in consultation with the Contracting Officer Representative.

e. Observers

(1) Permitted on sanitary surveys and may include, but are not limited to, the Navy personnel listed below. 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.

(a) Echelon I, II, III or IV staff

(b) Region or Installation staff

(2) Non-official sanitary survey team members and can be excluded from any discussions on sanitary survey findings by the Team Lead during the sanitary survey.

(3) Will not interfere or obstruct the official sanitary survey team and their assessment process.

(4) Will not interact directly with the A/E contractors unless permitted by the Team Lead.

(5) Will communicate any concerns directly to the Team Lead while adhering to rules in paragraphs 3e(2) through 3e(4) of this chapter.

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

4. Procedure

a. The survey report will include, but is not limited to the requirements listed below:

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

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

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

(4) Evaluation of the system's ability to meet requirements of Final Governing Standards, references (c), (h), (y), (z) and this manual.

(5) Description of deficiencies identified during the sanitary survey and the associated policy and regulatory citations for the identified deficiencies.

- b. RFI will be fulfilled by the installation at least 30 days prior to the sanitary survey team site visit. If the RFI is not fulfilled within this timeframe, the A/E contractors may not review the requested documentation prior to the sanitary survey and it will be listed as a deficiency.
- c. Results of the sanitary survey and the associated installation Plan of Action and Milestones, that is required per reference (y), will be provided to the WQOC for review during the Certificate to Operate (CTO) review process.
- d. The process flow chart, outlined in reference (y), identifies the link between the sanitary survey and CTO that must be followed by the Installation Water Quality Boards, RWQBs and the WQOC.

CHAPTER 9
CHEMICAL CERTIFICATION

1. General

a. Chapter 2 establishes quality standards for Navy drinking water at overseas locations. References (n) and (ab) require that chemicals used in Navy water treatment systems meet the standard in reference (ac). Country-specific FGS and reference (h) do not incorporate NSF/ANSI Standard 60. For example, the European Committee for Standardization defines European Union standards for chemical additives in drinking water through CEN/TR 14269:2001 are not the same as NSF/ANSI Standard 60.

b. This chapter establishes NSF/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, as the standard applicable to the ODW Program. It addresses the use of drinking water treatment chemicals in meeting the Secretary of the Navy and CNO direction on ODW quality. This manual also ensures that as changes occur to NSF/ANSI Standard 60, overseas Navy installations are subject to the changes. The WQOC will monitor NSF/ANSI Standard 60 and communicate any changes to overseas Navy installations.

c. All drinking water treatment chemicals used at overseas Navy installations must be NSF/ANSI Standard 60-certified. 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 when there is a change in supplier or manufacturer. The procedure described in paragraph 2 must be followed in obtaining chemical-specific NSF/ANSI Standard 60 equivalency evaluation of a chemical and RWQB and WQOC approvals of such chemical.

2. Procedure

a. Overseas Navy installations will determine the need for specific water treatment chemicals to meet applicable water quality standards. IWQB will validate the requirement(s) 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.

b. 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 L for the procedure for selecting water treatment chemicals. The purchase and delivery of chemicals must be accompanied by certification documentation from the manufacturer and/or the certifying entity. Certification documentation must be kept on record by the installation in the Navy ODW Data Repository.

c. In situations where the installation is unable to obtain certified chemicals, the alternatives described below will be used.

(1) If the IWQB identifies water treatment chemicals that are certified per references (ad) and (ae); or certified per host nation legislation as being equivalent to chemicals certified to comply with the standards established in references (ad) and (ae), 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, it may be possible to submit a variance request to the NSF/ANSI Standard 60 requirement, which will be evaluated on a case-by-case basis. Refer to chapter 6 for the specific requirements and stipulations to submit variance requests.

(2) 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.

d. 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.

e. 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.

- f. 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.
- g. 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.
- h. 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.
- i. 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.

CHAPTER 10
CERTIFICATE TO CONSTRUCT

1. General

a. Background. This chapter establishes criteria, requirements and processes for the construction or the modification of ODW systems to 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.

b. Applicability and Scope

(1) The 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 examples listed below:

- (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 objectives of:

- (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 paragraph 2a(1)(b) of this chapter 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 paragraphs 1b(1)(a) through 1b(1)(d) of this chapter, by following the steps as outlined in paragraphs 2(a) through 2(d) of this chapter. 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 Certificate to Operate (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. In addition to paragraph 2, refer to the reference (1) for further details on the CTC process and requirements.

2. Procedure

a. Planning Phase

(1) Convene Formal WQOC TAB Preliminary Requirement Review

(a) Requests for a CTC can be submitted to the TAB, via the RWQB, using the CTC Request Form (Appendix M).

(b) 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.

(2) Existing Data Review

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

(b) 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 form 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 Form 1391.

b. Design Phase

(1) Review of Conceptual Design or Preliminary Engineering Report

(a) The TAB will review, per 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.

(b) 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.

(2) Review of Interim Design Submittals

(a) 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.

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

(3) Review of Request for Certificate to Construct

(a) 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 that all design elements meet Navy drinking water design standards.

(b) 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.

(4) CTC Issuance Final Determination

(a) 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.

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

c. Construction Phase

(1) Modifications to design or location. The TAB will be notified of any changes to the design or location of the facility.

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

(a) 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.

(b) 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.

(c) Upon receipt of notification, the TAB will select representative(s) 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.

(d) 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 per 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.

d. Issuance of Interim CTO. Upon receipt of the notice of construction completion, the WQOC Chair will review the recommendations from the TAB and will make a final determination regarding facility acceptance and will issue a letter of recommendation for facility acceptance and issuance of an ICTO.

e. Reference (1) outlines the key stakeholders, roles and responsibilities and communication flow for communicating the activities and products of the TAB.

CHAPTER 11
TRAINING

1. General. Training requirements ensure key Navy Overseas Drinking Water (ODW) Program personnel are qualified to perform their duties. The Navy ODW training program addresses general training and awareness, site specific training developed by the Regional Water Quality Board and operator training that supports operator certification.
2. Installation Commanding Officers, Executive Officers and Public Works Officers. Installation Commanding Officers (CO), Executive Officers (XO) and Public Works Officers (PWO) 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. Operators in Responsible Charge (ORC) and Assistant Operators in Responsible Charge (AORC) will comply with training and certification requirements established in reference (z).
5. Region and Installation Preventive Medicine Authority. Region and Installation Preventive Medicine Authorities will comply with training requirements established in reference (aa).
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 ORC and AORC will be maintained per reference (z).

CHAPTER 12
RECORDS MANAGEMENT

1. General. Records created as a result of this manual, regardless of media and format, will be managed per reference (af) and uploaded, unless otherwise noted in the applicable section, to the 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 (ag). Navy ODW Data Repository users with WQOC access that manage data at the WQOC level will comply with protocols found in reference (ah).

3. Records

a. ODW Data Repository

(1) RWQB will upload the ODW Metrics Scorecard to the ODW Data Repository by the 10th of each month.

(2) RWQBs will upload updates to the Physical Inspection Program Checklist to the ODW Data Repository by the 10th of each month.

(3) RWQBs will upload final Certificate to Operate documentation to the ODW Data Repository for each applicable drinking water system.

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

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

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

b. CNIC G2 Website

(1) At least quarterly, IWQBs and RWQBs will update and validate the Requirements Plan of Action and Milestones (POAM) on Commander, Navy Installations Command (CNIC) G2 website, located at: <https://g2.cnic.navy.mil/tscnichq/N4/N45/ODW/Lists/POAM/Summary.aspx>.

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

APPENDIX A
REFERENCES

- a. SECNAV Memo, Overseas Potable Water Systems of 28 Jan 08
- b. CNO Memo, Overseas Potable Water Systems of 1 Apr 09
- c. OPNAVINST 5090.1D
- d. NAVIG Summary Report, Overseas Potable Water Systems of Jan 2009
- e. 10 U.S.C.
- f. CNO WASHINGTON DC 181603Z Jun 08 (NOTAL)
- g. CNO Guidance for 2010 Executing the Maritime Strategy of Sep 2009
- h. DoDD 4715.05-G, Overseas Environmental Baseline Guidance Document, May 2007
- i. DoD Instruction 4715.05, Environmental Compliance at Installations Outside the United States, 1 November 2013
- j. U.S. Navy Overseas Water Quality Oversight Council (WQOC) Charter of May 2017
- k. Navy Operator Certification Authority (NOCA) Board Charter of Dec 2017
- l. Navy Overseas Drinking Water Technical Advisory Board (TAB) Charter of May 2016
- m. OPNAV Memo, Navy Policy Requirements for Drinking Water Exceedances, 14 Oct 16
- n. NAVMED P-5010-5 (Rev. 6-2008), Manual of Naval Preventive Medicine, Chapter 5 Water Supply Ashore, 23 June 2008
- o. Memorandum of Agreement with CNIC and NAVSEA for Overseas Drinking Water Sampling and Laboratory Support, 29 February 2016
- p. DoD Quality Systems Manual Version 5.1, Jan 17
- q. National Primary Drinking Water Regulations (40 Code of Federal Regulations (CFR) 141)
- r. Safe Drinking Water Act of 1974 (amended 1996)
- s. Public Health Services Act of 1944

- t. Reduction of Lead in Drinking Water Act of 2011
- u. DoD Policy and Guidelines for Acquisitions Involving Environmental Sampling or Testing, November 2007
- v. Overseas Drinking Water System Definition and Guidance, 26 January 2017
- w. Overseas Drinking Water Plant Operational Logs and Site Log Books Standard Operating Procedure, 24 October 2016
- x. Revised Public Notification Handbook, EPA 816-R-09-013, March 2010
- y. CNIC M-5090.2
- z. CNIC M-5090.3
- aa. BUMEDINST 6240.10B
- ab. Unified Facilities Criteria (UFC) 3-230-03, Water Treatment, Section 8.1, 1 November 2012
- ac. National Sanitation Foundation/American National Standards Institute (NSF/ANSI) Standard 60 “Drinking Water Treatment Chemicals – Health Effects,” October 2013
- ad. European Norm CEN/TR 14269:2001, Chemicals Used for Treatment of Water Intended for Human Consumption – Guidelines for the Purchase of Products
- ae. Japan Water Works Association (JWAA) K120 2008-2: Sodium Hypochlorite for Water
- af. SECNAV M-5210.1
- ag. Navy Overseas Drinking Water Database Users Guide March 2015 NAVFAC Engineering and Expeditionary Warfare Center (EXWC)
- ah. Navy Overseas Drinking Water Database WQOC Users Guide March 2015, NAVFAC EXWC

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

SECTION 1: BACKGROUND, PURPOSE AND POLICY

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

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

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

 - b. Program Management and Oversight. The Water Quality Oversight Council (WQOC) is responsible for developing and implementing the GWUDI determination process, issuing related policies, issuing guidance and making final GWUDI determinations. The Region Water Quality Boards (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 M) 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 options listed below:

(1) The source may be studied further

(a) The Scope(s) 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 concurrence by the WQOC.

(2) Additional source information may be requested

(3) Repair of source construction deficiencies

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

e. The WQOC has the discretion to require installations 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 M) 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 and as-built drawings; well logs; or photographically documented site inspection.

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

b. Historical Installation Microbiological and Pathogenic Contamination. The metric for microbiological contamination is based on the acute maximum contaminant level 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 (c).

(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: GIS 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 and 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 and 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 and 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 (c).

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

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

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

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

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

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

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

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

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

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

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

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

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

(1) Acceptable documentation: 100 Year floodplain maps.

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

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

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

3. Preliminary Assessment Score

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

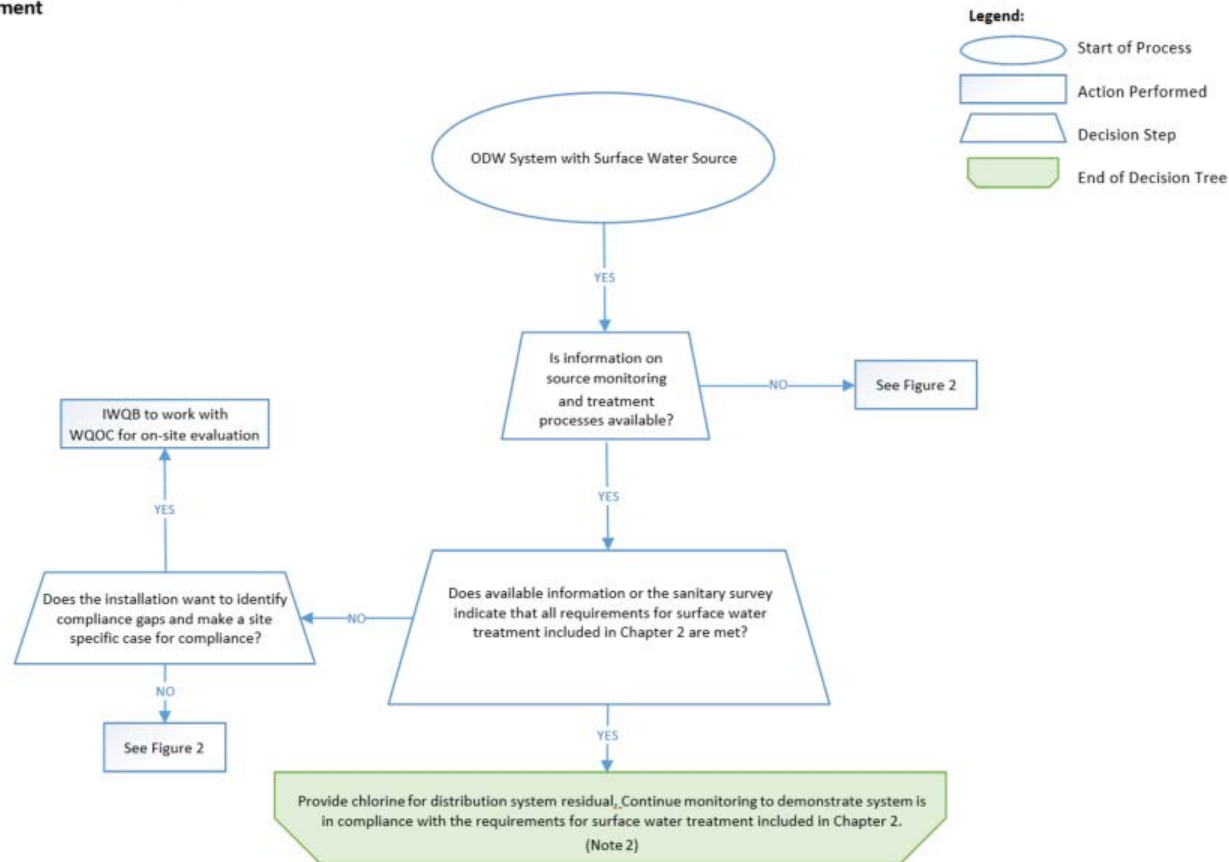
b. Source scored between 40 points and 80 points: The source will undergo a GWUDI Study to determine applicability of surface water treatment requirements or be classified as GWUDI.

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

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

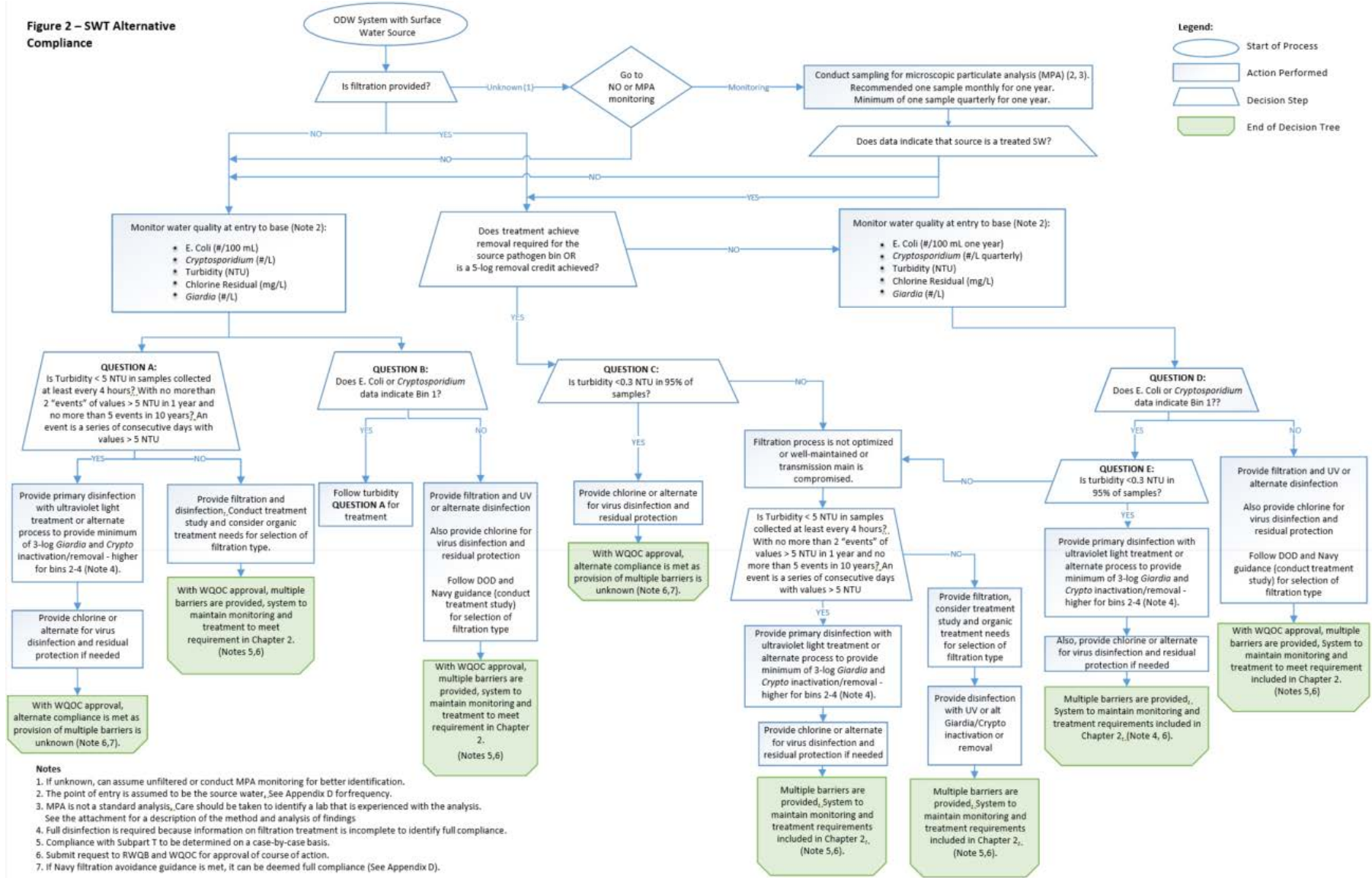
APPENDIX C SURFACE WATER TREATMENT COMPLIANCE ASSESSMENT TOOL

Figure 1 – SWT Initial Compliance Assessment



- Notes**
1. System has identified that source is a surface water or GWUDI.
 2. Compliance with Subpart T to be determined on a case-by-case basis.

Figure 2 – SWT Alternative Compliance



- Notes
1. If unknown, can assume unfiltered or conduct MPA monitoring for better identification.
 2. The point of entry is assumed to be the source water, See Appendix D for frequency.
 3. MPA is not a standard analysis, Care should be taken to identify a lab that is experienced with the analysis. See the attachment for a description of the method and analysis of findings
 4. Full disinfection is required because information on filtration treatment is incomplete to identify full compliance.
 5. Compliance with Subpart T to be determined on a case-by-case basis.
 6. Submit request to RWQB and WQOC for approval of course of action.
 7. If Navy filtration avoidance guidance is met, it can be deemed full compliance (See Appendix D).

APPENDIX D
SURFACE WATER TREATMENT GUIDANCE - FILTRATION AVOIDANCE CRITERIA

This table provides the authoritative list of criteria that must be met in order for a Navy ODW 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.

Table D-1: Navy ODW Surface Water Treatment Guidance – Filtration Avoidance Criteria

Source Water Quality Conditions
1. 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% of measurements made for the previous 6 months on an ongoing basis [40 CFR 141.71(a)(1)].
2. Turbidity NTE 5 NTU at the same location mentioned in Criterion 1 [40 CFR 141.71(a)(2)].
Site-Specific Conditions
3. Disinfection treatment demonstrating at least 99.9 % (3-log) inactivation of Giardia and 99.99 % (4-log) inactivation of viruses every day except one day each month in previous 12 months of operation [40 CFR 141.71(b)(1)(i)].
4. 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 [40 CFR 141.71(b)(1)(ii)].
5. The residual disinfectant concentration in the water entering the distribution system not less than 0.2 mg/L for more than 4 hours [40 CFR 141.71(b)(1)(iii)].
6. 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 [references 40 CFR 141.71(b)(1)(iv)].
7. 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 [40 CFR 141.71(b)(2), 141.171, 141.520 and 141.521].
8. Annual on-site inspection by the WQOC or a WQOC-approved party to assess the watershed control program and disinfection treatment process [40 CFR 141.71(b)(3)].
9. The public water system not being identified as a source of waterborne disease outbreak or else modified sufficiently to prevent another such occurrence [40 CFR 141.71(b)(4)].
10. Compliance with the maximum contaminant level (MCL) for total coliforms in at least 11 months of the 12 previous months of operation [40 CFR 141.71(b)(5)].
11. 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 [40 CFR 141.71(b)(6)].

Table D-2: Sampling Frequency Requirements for Water Quality Monitoring

Parameter	Sampling Frequency	Total Number of Samples	Other
<i>E. coli</i> (#/100 ml)	Every 2 weeks for 1 yr	26	Be sure method is MPN or plating; not P/A
<i>Cryptosporidium</i> (#/L)	Monthly for 2 yrs or twice monthly for 1 yr	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
<i>Giardia</i> (#/L)	Monthly for 2 yrs or twice monthly for 1 yr	24	Can do more samples to improve source characterization (1)
Microscopic Particulate Analysis (MPA) (Optional; not a monitoring requirement)	Once monthly for 1 yr; thereafter minimum of 1 sample quarterly for 1 yr	12 (minimum of 4 samples)	MPA shall be approved by the WQOC in advance of sampling

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

APPENDIX E
HAULED WATER HEALTH AND SAFETY REQUIREMENTS

All drinking water treatment plant personnel, including the Operator in Responsible Charge and Assistant Operator in Responsible Charge, 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 fit for human consumption (FFHC) container water refilling.
 - b. Use disposable gloves during servicing of FFHC water dispensers (refer to Appendix G, paragraph 4a Five Gallon Water Dispensers).
 - c. Make skin sanitizer available to the workers to use if desired, but this method is not acceptable as a primary form of handwashing.

APPENDIX F
HAULED WATER EQUIPMENT, SUPPLIES, MATERIALS AND TOOLS REQUIRED

1. Standard Equipment and Systems

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

b. Standard equipment includes, but is not limited to: 5-gallon water dispenser container, 5-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, which will:

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

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

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

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

(5) Comply with references (ai) and (aj).

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% sodium hypochlorite solution (unscented and no additives; NSN 6810-00-598-7316, 5-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 NSF/ANSI Standard 61 or will be approved by the RWQB, in consultation with the WQOC, if they meet host nation equivalent certification testing requirements or applicable U.S./international food safe material regulations.

j. Long handle scrub brush (NSN 7920-00-061-0038), only for FFHC use.

k. N,N- diethyl-p-phenylenediamine (DPD) portable test kit for measuring free chlorine residual.

l. Water dispenser which uses 5-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 Operator in Responsible Charge will approve all equipment and materials to be used.

APPENDIX G
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 1 minute and then drain the solution out of it. Drain some of the solution through the spigot to clean it.

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

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

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

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

b. Bulk Water Storage Containers

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

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

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

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

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

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

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 there is not a sanitary sewer 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 H for chlorine solution information). Shake the container to disinfect. Be sure to cover all areas inside the container when shaking.

(2) Let stand for 5 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 H 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 paragraph 2e of this Appendix 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 H 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 paragraph 2e of this Appendix 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 H 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 paragraph 2e of this Appendix 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 Operator in Responsible Charge (ORC) for assistance.

3. Portable Container Filling

a. Fill and offload containers using sanitary protocols (refer to reference (ai)). 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 (ak). Check the backflow device label to ensure the device has been tested in the last 6 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 F, paragraph li of this Appendix).

(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 paragraphs 4a(2) through 4a(10) of this Appendix, 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% 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 paragraph 4a of this Appendix) 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 4 weeks or more. Note in Hauled Drinking Water Log (Appendix M) 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 M).

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 M).

(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 3 days.

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

(10) Refer to paragraph 5a(1)(b) in chapter 3 for procedural requirements when coliforms are detected.

6. Container Storage

a. Non-Bulk Containers

(1) Keep containers (full or empty) covered and protected from contamination.

(2) Keep containers in a shaded location or indoors if possible.

(3) Keep containers capped and sealed.

b. Bulk Water Containers

(1) Cover, seal and lock bulk water containers to protect from tampering.

- (2) Keep containers in a shaded location or indoors if possible.

APPENDIX H
CHLORINE DOSE CALCULATION AND MEASUREMENTS

This information comes from the Technical Bulletin: Sanitary Control and Surveillance of Field Water Supplies. Tables H-1 and H-2 provide volumes in drops (dp), milliliters (mL), teaspoons (tsp), tablespoons (tbls), cups (cp) 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.

Table H-1: Sodium Hypochlorite 5% (unscented)

Volumes of 5-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 H-2: Calcium Hypochlorite (HTH)

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

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.

APPENDIX I
OVERSEAS DRINKING WATER LABORATORY DECISION TREE

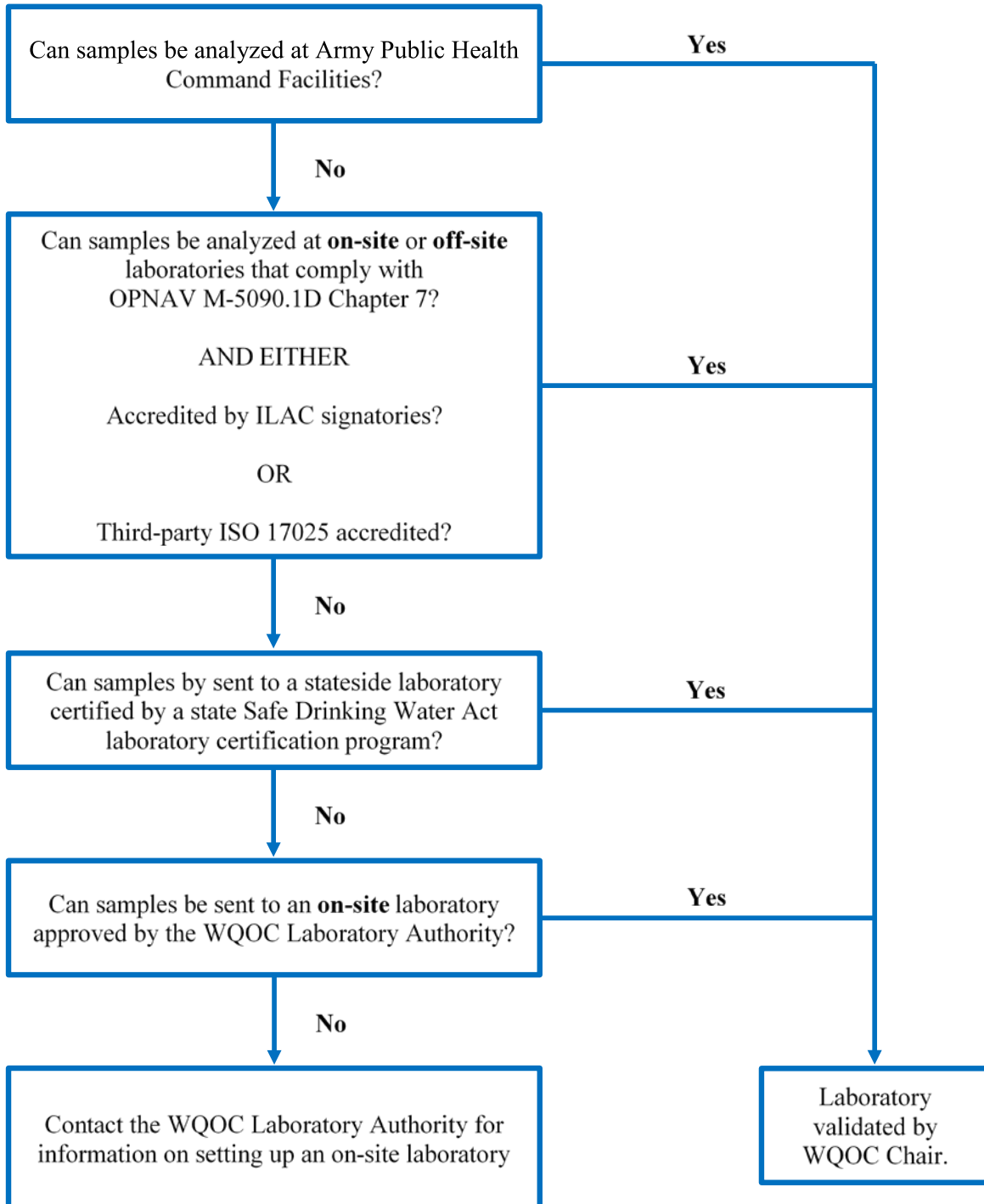


Figure I-1. Laboratory Decision Tree

APPENDIX J
OVERSEAS DRINKING WATER LABORATORY APPROVAL PROCESS

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

1. ODW Laboratory Approval Program. The Water Quality Oversight Council (WQOC) Laboratory Authority may approve laboratories that do not meet the accreditation requirements listed in chapter 4. See Appendix K for a diagram showing the three stages of the Overseas Drinking Water (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 approve third-party laboratories if feasible; however, Installation Compliance Laboratories are the priority for approval.

(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 approval process as specified in paragraphs 1b(1) through 1b(4) of this Appendix.

(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 quality assurance (QA) and approval status.

(4) Development and provision of guidelines, forms and checklists to help the Regional Water Quality Board (RWQB), Installation Water Quality Board (IWQB) and laboratories prepare specific information for submittal with a request for laboratory approval.

c. Approval Process. The approval process begins when the installation makes a request in writing to the WQOC Laboratory Authority. After reviewing the request, a mutually agreeable date and time should be set for an on-site laboratory assessment. This request must list the reason(s) for not using U.S. Army PHC or an accredited laboratory as well as the scope of analyses for which the laboratory is seeking approval. The request may be one of the types listed in paragraphs 1c(1) through 1c(3) of this Appendix.

(1) First-time approval for chemistry, microbiology, radiochemistry 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 downgrading/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 rating scheme listed in paragraphs 1d(1) through 1d(3) of this Appendix.

(1) Approved. A laboratory that meets all the regulatory performance criteria as explained in chapter 4 and all other applicable regulatory requirements.

(2) Provisionally Approved. A laboratory that has deficiencies being addressed by an active corrective action plan, demonstrates its ability to meet the requirements specified in chapter 2 and operates within the requirements of chapter 4 may be provisionally approved. A provisionally approved laboratory may analyze drinking water samples for compliance purposes. Provisional 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 Plan of Action and Milestones (POAM) for addressing deficiencies to the WQOC Laboratory Authority, which must approve the POAM prior to issuing provisional 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 standard operating procedures (SOPs) on personnel training and maintain records on all personnel. These records will include documentation for all job related formal education and training which pertains to any aspect of his or her responsibilities including analytical methodology, laboratory safety, demonstrations of capability, sampling, QA and data analysis.

(2) Laboratory Director, Manager or Technical Director. The laboratory director/manager will be a qualified professional with the technical education and 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. Options to fill QA manager positions, as well as additional requirements, are detailed in paragraphs 1e(3)(a) through 1e(3)(c) of this Appendix.

(a) QA manager positions will be filled via one of the options listed in paragraphs 1e(3)(a)(1) through 1e(3)(a)(3) of this Appendix.

1. A Region full-time equivalent, who serves, for a percent of their time, as QA manager for installations in the applicable Region. The Region 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 paragraph 5d(10)(a) of this Appendix.

2. An installation-specific QA manager, if 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 installation-specific QA manager.

(b) Installation QA managers may also serve in the role of a Region QA manager provided that the chain of communication and authority are properly defined in Region 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 (u). Laboratories are required to comply with the prohibitions identified in the DoD Quality System Manual. These include the prohibited practices listed in paragraphs 1e(5)(a) through 1e(5)(h) of this Appendix.

(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.

(7) Approved laboratories may participate in annual customer service surveys for the ODW systems they serve. Appendix M contains a template for an annual customer service survey.

2. Requirements for Maintaining Approval Status

a. Methodology. Laboratories must use the methods specified in chapter 2. The U.S. Environmental Protection Agency (EPA) Office of Water provides a list of all the analysis methods, which is available at www.epa.gov/dwanalyticalmethods. The WQOC Laboratory Authority will evaluate equivalent methods on a case-by-case basis. RWQBs wishing to have equivalent methods from a laboratory approved 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 proficiency tested. Laboratories that fail two consecutive PT samples for the same parameter will lose their approval for that parameter and will not report data for compliance purposes until they have performed a corrective action and successfully reanalyzed PT samples as directed 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 still downgrade or 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 triennially. However, if the laboratory undergoes a major change 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. In addition, 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 Commander, Naval Sea System Command 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 three years, in conjunction with a Sanitary Survey when appropriate.

(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 will assign the assessment 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 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 or Technical

Director 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 supervisor and establish a schedule, including deadlines, for the laboratory to address major 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 Downgrading or Revoking Approval

a. Criteria for Downgrading Approval Status. A laboratory may be downgraded to “provisionally approved” status for a contaminant or group of contaminants for any of the reasons listed in paragraphs 3a(1) through 3a(4) of this Appendix.

(1) Failure to successfully analyze a PT sample at least annually within the specified acceptance criteria.

(2) 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).

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

(4) Failure to report compliance data to the ODW system in a timely manner, thereby preventing compliance with regulations and endangering public health. Data that may cause the system to exceed a Maximum Contaminant Level (MCL) will be reported within 5 business days to allow preparation of mandated public notifications.

b. Criteria for Revoking Approval Status. A laboratory may be downgraded from approved or provisionally approved status to “not approved” for a particular contaminant analysis for the reasons listed in paragraphs 3b(1) through 3b(8) of this Appendix.

(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 provisionally 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 provisionally approved laboratories, failure to satisfy that the laboratory has implemented and evaluated corrective actions from deviations identified during on-site assessments.

(6) For provisionally 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 5 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.

c. Upgrading or Reinstatement of Approval. Through a written request, a laboratory may seek upgrading or reinstatement of approval, when and if the laboratory can demonstrate to the WQOC Laboratory Authority's satisfaction that the deficiencies which produced provisionally approved status or 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 updated and reviewed annually. 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. Programs that operate per ISO/IEC 17025 may already have the documentation required by this section.

d. At a minimum, each QA plan must address the items in paragraphs 5d(1) through 5d(15) of this Appendix.

(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) Reference the job descriptions of personnel and describe training to keep personnel updated on regulations and methodology.

(d) Record the date when laboratory personnel have demonstrated proficiency for the methods they perform.

(e) Use template documentation in Appendix M.

(2) Sample Data Objectives. Document processes and performance criteria used to identify the ODW system's data quality compliance objectives.

(3) SOPs with Dates of Last Revision. The laboratory will follow the requirements listed in paragraphs 5d(3)(a) through 5d(3)(d) of the Appendix.

(a) Maintain a list of SOPs that accurately reflect all phases of current laboratory activities.

(b) Ensure that current copies of SOPs are in the laboratory and in the QA manager's files.

(c) Ensure that SOPs are reviewed annually and revised as changes are made.

(d) Ensure that SOPs have signature pages and revision history with dates.

(4) Laboratory Sample Receipt and Handling Procedures

(a) Bound laboratory notebooks, if used, will be filled out in ink; entries 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 please refer to Appendix A of reference (al).

(f) 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.

(h) Hold samples for reanalysis, where possible, until data validation step is complete.

(5) Instrument Calibration Procedures

(a) Specify type of calibration used for each method and frequency of use as well as acceptance criteria.

(b) Document calibration standards' source, age, storage and labeling.

(c) Perform data comparability checks.

(d) Use control charts and for radiochemistry, report counting errors within their confidence levels.

(e) Use template documentation in Appendix M.

(6) Analytical Procedures

- (a) Cite complete method manual.
- (b) Describe QC procedures required by the methods.

(7) Data Reduction, Validation, Reporting and Verification. Describe the conditions listed in paragraphs 5d(8)(a) through 5d(8)(e) of this Appendix.

(a) Data reduction process: method of conversion of raw data to milligrams per Liter (mg/L), picocuries/L, coliforms/100 milliliter.

- (b) Data validation process.
- (c) Reporting procedures, including procedures and format.

(d) Data verification process; for radiochemistry, describe reporting of counting uncertainties and confidence levels.

(e) 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. Parameters for chemistry and radiochemistry will include or reference the items listed in paragraphs 5d(8)(a) through 5d(8)(k) of this Appendix.

- (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) Parameters for microbiology will include or reference the items listed in paragraphs 5d(9)(a) through 5d(9)(e) of the Appendix.

- (a) Positive and negative culture controls.
- (b) Confirmation/verification of presumptive total coliform positive samples.
- (c) Sterility controls.
- (d) PT and QC samples.

(e) Chapters IV, V, VI and VII of US EPA Manual for Certification of Laboratories contain detailed information on QC checks for chemistry, microbiology, radiochemistry and parasitology.

(10) Internal and External Assessment Schedules. Internal and external system and data quality assessments will follow the schedule listed in paragraphs 5d(10)(a) and 5d(10)(b) of this Appendix.

- (a) Conduct internal assessments annually.
- (b) Conduct external assessments triennially.

(11) Preventive Maintenance Procedures and Schedules

- (a) Describe location of instrument manuals, schedules and documentation of routine equipment maintenance.
- (b) Describe availability of instrument spare parts in the laboratory.
- (c) List any maintenance contracts in place.

(12) 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.

(13) Quality Management Record Keeping Procedures

- (a) Describe procedures and documentation of those procedures.
- (b) List length of storage and media type (electronic or hard copy).
- (c) Describe security policy of electronic databases.
- (d) Provide software support for all electronic data regenerate it.

APPENDIX K
STAGES OF THE ODW LABORATORY APPROVAL PROCESS

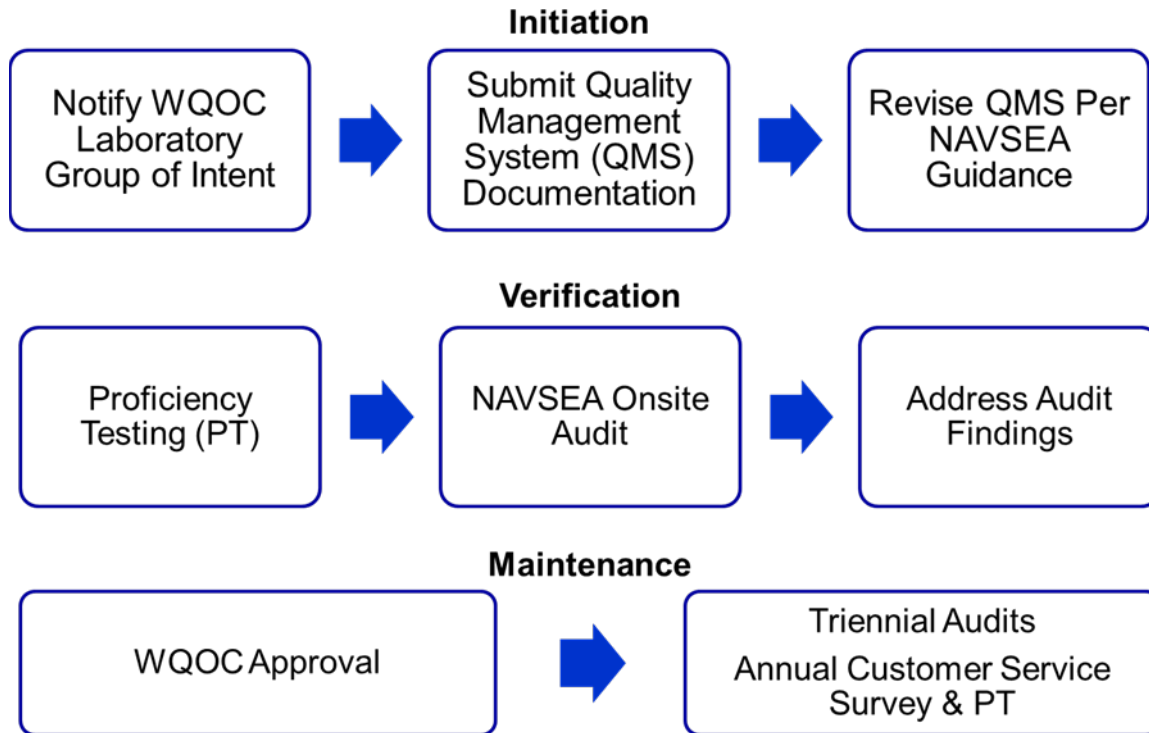


Figure K-1. Laboratory Approval Process

APPENDIX L
PROCEDURE FOR SELECTION OF TREATMENT CHEMICALS

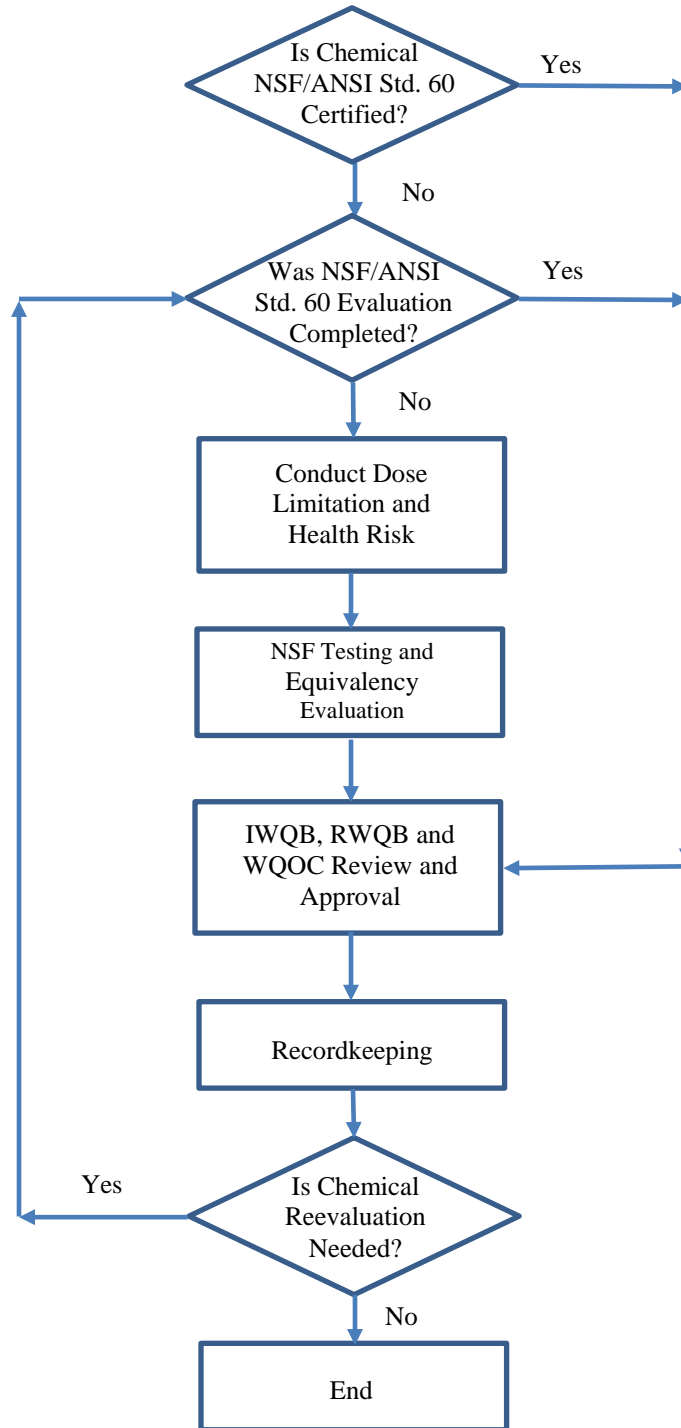


Figure L-1. Procedure for Treatment Chemical Selection

APPENDIX M
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 1 Assessment Form
 - b. Revised Total Coliform Rule Level 2 Assessment Form
 - c. GWUDI Preliminary Assessment Worksheet
 - d. IDSE 40/30 Certification
 - e. IDSE Standard Monitoring Report
 - f. IDSE Very Small System Waiver
 - g. Hauled Drinking Water Log
 - h. Laboratory Annual Customer Survey
 - i. Laboratory Personnel and Equipment Information
 - j. Physical Inspection Report
 - k. Technical Advisory Board Submittal Request

APPENDIX N 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 Program Ashore.

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.

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 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 (per applicable laws) is granted to the U.S. by international agreement.

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 Water Quality Oversight Council (WQOC) to an ICO 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.

Containers. Holding tanks suitable for FFHC drinking water. Standard equipment includes, but is not limited to: 5-gallon water dispenser container, 5-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 F 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 log book recording for each water transfer date, time, operator, vessel type and pre- and post-water meter readings at a minimum. The connection point should include at a minimum, a water meter, an approved reduced-pressure principle backflow prevention assembly, a hand (or

optionally motorized) operating valve and finally a removal cap to cover the connection when not in use.

Executive Agent (EA). In this manual refers to the Navy EA for Drinking Water Ashore (CNIC).

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

Fit for Human Consumption. 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 Commanding Officer 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 Region Commander (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 Operator in Responsible Charge for Treatment and Distribution, a representative from local PMA and the installation PAO. These are required members only; other ad hoc members may be added as needed. The IWQB manages the installation drinking water program and reports to the RWQB for all drinking water matters. The standing members will be documented and submitted to the WQOC via the RWQB.

Instrumentality. An agency or means through which the required functions of a larger, controlling agency or means are carried out.

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, accounting of 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 (n) chapter 5, Appendix A.

Method Detection Limit (MDL). The minimum concentration of a substance that can be measured and reported with 99% 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 Overseas Drinking Water Ashore Program.

Overseas Installation. A U.S. Navy installation on the "CNIC Installations and Special Areas" list or an installation sponsored by a non-CNIC BSO that is outside of the United States and its territories. Overseas installation does not include contingency locations, per reference (i).

Overseas Drinking Water System. An assemblage of natural or man-made infrastructure by which drinking water is captured, collected, stored, treated and delivered to end users at overseas Navy shore installations. Components of drinking water systems include raw water supplies (e.g., reservoirs, lakes, rivers and ground water), water treatment facilities, water storage facilities, water pressurization components, distribution piping networks, other constructed conveyances and associated plumbing.

Primacy. Primary enforcement authority for interpretation and enforcement of Navy ODW policy.

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; also 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.

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

Regional Water Quality Board (RWQB). The Region Commander (REGCOM) (not a designee) will chair the RWQB. Standing members are the Region N4 and N45, representatives from the Region N45/Environmental office, 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 Water Quality Oversight Council for all drinking water matters.

Requirements Plan of Action and Milestones (POAM). 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 1 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 Executive Agent 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 Executive Agent, CNIC. The CNIC (N4), 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 Executive Agent for overseas drinking water 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 (LQAO). Members are nominated by their respective Commands and are designated by the WQOC Chair.