

WATER SUPPLY POINT EQUIPMENT AND OPERATIONS

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Preface

PURPOSE

This manual describes water purification, storage, and distribution equipment and its use by TOE units in their GS and DS roles. It also deals with water supply point operations. It includes information on quality control; ground and air reconnaissance; development of a water supply point; NBC and extreme environment operations; and purification, storage, and distribution operations. The appendixes provide additional detailed information on related subjects. Appendix A provides commonly used formulas. Appendix B provides a chart for computing chlorine residual percentages. Appendixes C, D, and E provide characteristics of major water purification, storage, and distribution equipment.

SCOPE

This manual is oriented toward tactical field operations and deals with the responsibilities of management and operator personnel. It can be used in conventional and nuclear warfare. However, do not cite this manual as an authority for requisitions. Base requisitions on TAs or TOEs.

USER INFORMATION

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INTERNATIONAL AGREEMENT

This publication implements the following international agreement:

STANAG 2885, *Procedures for the Treatment, Acceptability and Provision of Potable Water in the Field*, edition 3.

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Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1

Water Treatment

Section I

QUALITY

CHARACTERISTICS

Water quality has two major areas of concern as it relates to the daily operation of a water point. The first is the quality of the raw water source and how it affects the operation of the water purification equipment and use of treatment chemicals. The second is the quality of the product water and surveillance techniques used to guarantee its potability.

The nature of the raw water source will dictate the amount of water each purifier can produce. The total daily water requirement will indicate if additional water purification and storage equipment is needed to meet the demand. TB MED 577 lists the maximum concentration allowed for various chemicals in raw water sources. Concentrations above these limits eliminate a source as a potential water point for military operations. FM 10-52 describes in detail the effects and possible origins of physical and chemical raw water contaminants.

Chemical analyses and microbiological examinations of raw and treated water are required on a routine basis at water point sites. Chemical tests are necessary to ensure correct operation of the water purification equipment. Conduct chemical analyses during treatment to ensure proper chemical dosages and that the product water is potable. Conduct microbiological examinations after treatment to determine potability of the water.

WATER QUALITY ANALYSIS UNIT

The WQAU gives the water treatment operator the ability to rapidly detect five water quality

parameters: temperature, pH, total dissolved solids, turbidity, and free available chlorine (chlorine residual).

The WQAU consists of an electronic analytical device, an internal power source, basic spare parts, and the M272 Water Testing Kit-Chemical Agent. The WQAU weighs less than 40 pounds, has a volume of less than 2 cubic feet, and requires less than five minutes to measure the five separate parameters.

The WQAU can operate in geographical areas where air temperatures range from -28°F to 120°F. It is used primarily by water purification personnel that operate DS and GS water purification equipment. Water purification personnel use the unit during water point reconnaissance missions to assess the suitability of raw water sources and during water purification operations to assess the quality of finished water.

APPLICATION

The following sections are summaries of the effects the five physical and chemical characteristics of water have on the four treatment processes Army water purification units use to treat water (coagulation and flocculation, filtration, reverse osmosis, and disinfection). The water treatment specialist must know how to monitor for and respond to the presence or absence of these characteristics if he is to properly operate water purification, storage, and distribution equipment.