

**FM 10-416  
HEADQUARTERS  
DEPARTMENT OF THE ARMY**

**PETROLEUM PIPELINE  
AND  
TERMINAL  
OPERATING UNITS**

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HEADQUARTERS

DEPARTMENT OF THE ARMY  
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## PETROLEUM PIPELINE AND TERMINAL OPERATING UNITS

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\*This publication supersedes FM 10-207, 10 April 1981.

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## **PREFACE**

The mission of the United States Army is to protect and defend the Constitution of the United States of America. The Army does this by deterring war and, when and/or if deterrence fails, by achieving quick, decisive victory anywhere in the world and under virtually any conditions as part of a joint or combined team. Military leaders, at all levels, have the inherent responsibility to know and fully understand their role in supporting and fulfilling the Army's mission

### **Purpose and Scope**

The Army's doctrine lies at the heart of its professional competence. It is the official guide to how Army forces fight wars and conduct SASO. This manual, FM 10-416, provides military leaders the basic doctrine for the petroleum pipeline and terminal operating units in a theater of operations (developed and/or undeveloped). FM 10-416 further provides insight, general data and operational information for the commander, key leadership, and personnel assigned to the petroleum pipeline and terminal operating units ( TOEs 10416 and 10417L0). Information in this FM will assist in the supervision and conduct of training and operations in peacetime as well as during hostilities. Important environmental information is in Chapter 2 about individual and collective duties and responsibilities. Commanders and their leaders are encouraged to use their own judgments, experiences, initiatives, and imaginations along with the information in this FM to assist in the smooth and effective operation of their units.

### **User Information**

The proponent of this FM is HQ TRADOC. Send comments and recommendations on DA Form 2028 directly to:

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

\*\*All equipment listings are based on OTOEs at time of publication. Consult the using unit MTOE for current equipment authorizations.

## INTRODUCTION

Current petroleum doctrine, as this edition of FM 10-416 will reflect, is based on the Army's IPDS; its concept of employment and its interface with the U.S. Navy's OPDS as it pertains to either an "undeveloped" or "developed" theater of operations. FM 10-416 will serve as a key source of information for the leadership of the petroleum pipeline and terminal operating company's leadership. It will also serve as a vital source document in the current structuring of the unit's TOE.

### OPDS Overview

The mission of the OPDS is to deliver fuel to a BTU on the beachhead (near the shoreline). The OPDS consists of a fleet of specialized waterborne vessels (modified petroleum tanker cargo ships). Each ship carries a cargo of fuel, a single anchor leg mooring system (mooring buoy, anchor chain and mooring base) and 4 miles of heavy-duty flexible conduit (hose) stored on reels. In operation, the ship can anchor a maximum of 4 miles offshore and pump fuel through the mooring system and conduit to the BTU. At that location, the fuel is transferred into the IPDS through the beach interface assembly for movement inland.

### IPDS Overview and Concept of Employment

The IPDS consists of commercially available and military standard petroleum equipment that can be assembled by trained U.S. soldiers into an integrated petroleum distribution system. The system provides the Army with the unique capability required to support an operational force with bulk fuels in either an undeveloped and/or developed theater of operations. Bulk petroleum (fuel) can be supplied from either local sources or over-the-shore by the OPDS. The fuel is then moved inland via a pipeline system and pump stations to TPT or fuel storage facilities. Each TPT consists of three fuel units (bulk fuel receipt, storage and distribution facilities) and PLCAs. Each fuel unit consists of three tank farm assemblies. Fuel units may be used in combination with PLCA, and receive fuel from the pipeline or they can be used as independent units and receive fuel only from petroleum tank trucks/vehicles. In either case, the fuel unit can distribute fuel from bulk storage to tanker trucks for operational use.

Theater OPLANs identify fuel storage and distribution requirements from which pipeline traces (routes), pump stations locations and quantities and temporary storage sites are predetermined. If a requirement for OPDS exists, planning for location and installation is accomplished concurrently. In operation, the IPDS is designed to be transported to the theater of operations via the most expeditious and feasible way available, pending the CINC's priority of requirements. Engineer support units have the primary responsibility to install the pipeline, construct the pump stations, and assist with storage site preparation. Designated/selected Quartermaster units install the storage system and operate the total system when it is completed. Quartermaster units may also assist with the installation of pipelines when required. When not in use, the IPDS is stored in predetermined configurations and containers for deployment.



## CHAPTER 1

### ORGANIZATION OF THE THEATER

#### Section I. Theater Organization and Structure

*The petroleum pipeline and terminal operating battalion is part of the CSS function of the theater of operations. The unit is assigned or attached within the theater as the operational situation permits. This chapter describes the theater organization and structure and the role of petroleum logistics in the theater.*

#### THEATER ORGANIZATION

A theater is a large geographical area outside the continental United States that has one overall commander. The theater concept requires an organization that can be tailored for any size operation. The organization must be flexible enough for a diversified mission. The UCP establishes criteria for a unified theater based on national security strategy, national military strategy, geography, and history. Unity of effort requires that one responsible commander focus resources toward obtaining defined goals.

##### Chain of Command

The chain of command is prescribed by the Goldwater-Nichols Reorganization Act of 1986. The NCA exercises authority and control of the armed forces through a chain of command with two branches. The first branch flows from the President to the Secretary of Defense to the combatant commanders for missions and forces assigned to their commands. The second flows from the NCA to the secretaries of military departments to the chiefs of the service forces for execution of service functions. Commanders of the NCA are responsible to the NCA for the preparedness of their commands and execution of assigned missions. ASCC, assigned to the COCOMs, are responsible for preparing, maintaining, training, equipping, administering, and supporting Army forces assigned to the unified and specified commands. The Chairman JSC is placed within the chain of command to communicate the NCA's direction. Figure 1-1, page 1-2 displays the chain of command.

##### Command Authorities

Commanders in the chain of command exercise authority as prescribed by law or a superior commander. Commanders of US military forces use various levels of authority, which are described as command relationships and various other authorities. There are four command relationships: COCOM, OPCON, TACON, and support. The other levels of authority are coordinating authority, ADCON, and DIRLAUTH.

#### THEATER STRUCTURE

A theater is a geographical area OCONUS for which a commander of a unified command has been assigned military responsibility. It may be viewed from the strategic context as the level of international military cooperation required or the degree of necessary dedicated US military resources. These perspectives may influence how the Army conducts operations in each theater. Though theaters may involve unilateral US operations, US forces may also act with other nations in multinational operations, as in Operations Desert Shield and Desert Storm.

##### Types of Theaters

Theaters are often described as maritime, continental, or littoral based on their dominant geographic and strategic characteristics. This description influences the predominant type of military forces used, the strategic missions assigned, and the strategic and operational objectives pursued in the theater. Continental theaters primarily involve control of land and associated airspace. Maritime theaters focus on ensuring control of the sea and associated airspace. A littoral theater is set up on a shore or coastal region where major actions between land, air, and sea operations are combined and must be synchronized.