

CHAPTER 9 -- Section II

THEATER SUPPLY -- FUEL

References

FM 10-1, Quartermaster Principles, 11 August 1994
 FM 10-67-1, Concepts and Equipment of Petroleum Operations, 2 April 1998
 FM 63-2, Division Support Command, Armored, Infantry and Mechanized Infantry Divisions, 20 May 1991
 FM 63-3, Corps Support Command, 30 September 1993
 FM 63-23, Aviation Support Battalion, 6 June 1996

Objective

- Understand the basic responsibility of the units that manage Class III bulk fuel and the methods that are employed
- Relate the association of units in the Class III bulk fuel process with one another

Introduction

The modern US Army corps lives and breathes with its fuel. The ability to use our mechanized forces to our advantage requires fuel, and lots of it!! General George S. Patton's race across Europe in World War II was stopped due to the lack of fuel. Desert Storm would not have had the success it did if it was not for the ability of the logistics community to keep the tracked vehicles and aircraft full of fuel.

CLASS III (BULK)				
XXXX	XXX	XX	X	II
COMMZ	<u>CORPS</u>	<u>DIVISION</u>	<u>BRIGADE</u>	<u>BATTALION/ SQUADRON</u>
QM SUPPLY CO (DS)	QM SUPPLY CO (DS)	S&S CO (DS)	SUPPLY CO (DS)	BN SPT PLT (UNIT)
PETROLEUM SUPPLY CO (GS)	PETROLEUM SUPPLY CO (GS)		ASB HSC CLASS III/V PLT	
PIPE LINE & TERMINAL OPERATING CO (GS)			<u>REGIMENT</u>	
			S & T TRP (DS)	

Figure 9-II-1. Bulk Fuel

Class III Forecasting

A fighting force can move and fight only as long as it is supplied with fuel. The modern Army's high performance air and ground vehicles provide great mobility to the combat maneuver commander, but they also consume huge quantities of fuel. CSS planners and managers must focus on anticipating battlefield fuel requirements rather than waiting for the combat units to request resupply in order to be responsive to the mobile forces on the battlefield.

Division units submit daily Class III forecasts to the DMMC Class III section on their logistics status report. The MSB, FSB Class III sections, and the ASB HSC Class III/V platoon also submit the status of their Class III stocks (on hand, issued, received) to the DMMC. The DMMC uses these status reports and unit forecasts to compute the bulk fuel requirements for the Division. The DMMC forwards the Division's anticipated Class III requirements to the Corps MMC who then coordinates the delivery of bulk fuel to the division according to the Corps Class III distribution plan. (Figure 9-II-2)

The CMMC consolidates division requests/forecasts along with those of the CSGs (both Forward and Rear). Then the corps request/forecasts are sent to the TSC DMC who consolidates the corps and QM Groups (POL) needs. If more fuel for the army is required it is sent to the Joint Petroleum Office (JPO),

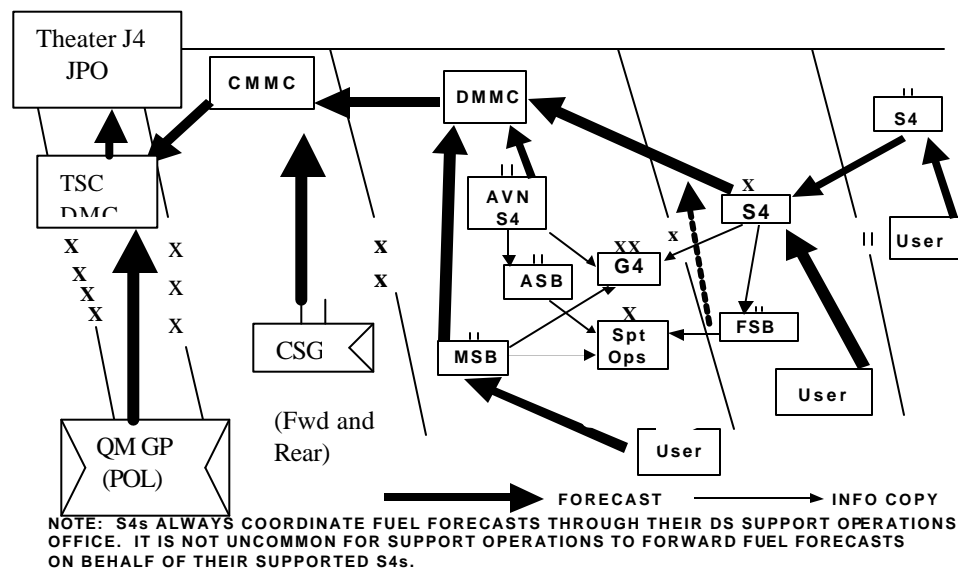


Figure 9-II-2. Bulk fuel forecast system

Fuel Support

The combat battalion's **support platoon** provides retail fuel support to the battalion. The support squadron **S&T troop** provides DS level Class III support to units in the ACR. **The Aviation Support Battalion (ASB)** provides fuel to the **aviation battalions** using supply point distribution. **The Forward Support Battalion**

(FSB) supply company provides DS level Class III resupply for all division units in the brigade area. When the Aviation Battalion's cavalry squadron or attack helicopter battalions are in a maneuver brigade area, they are supported by the FSB Class III supply point. The **Main Support Battalion (MSB) S&S Company provides DS level Class III resupply** to the FSBs and to division units in the division rear area. The **DS QM supply companies** in the Corps provide **DS level Class III support** to non-divisional units on an area basis.

The corps **GS Petroleum Supply Company provides GS level Class III support** to the DS QM supply companies, MSB S&S companies, FSB supply companies, and the Support Squadron S&T troop throughout the corps.

In the theater, the **DS QM supply companies** provide DS level Class III support to units on an area basis. The **GS petroleum supply companies** provide GS level support to the DS QM supply companies in the theater and to corps units as required. The **Pipeline and Terminal Operating Company** in the theater provides bulk fuel to GS petroleum supply companies throughout the theater. Class III supplies can be throughput to forward locations from any Class III supply unit as required. (Figure 9-II-3)

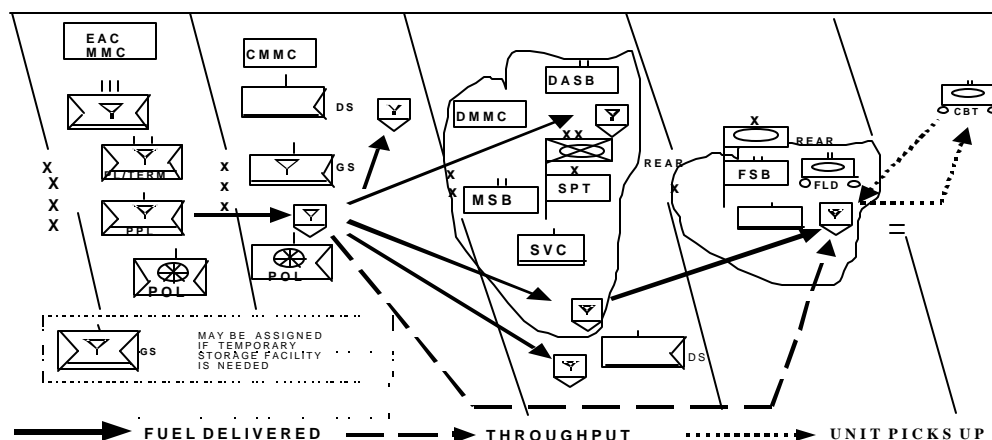


Figure 9-II-3. Bulk fuel distribution system

Fueling of the Theater

The key person for fuel determination in a theater is the Joint Petroleum Office (JPO). The JPO works in the J4 shop of the Theater Combatant Commander. This office will consolidate all the requirements for the theater by each service and determine if there is enough assets on hand to support what each service projects it will need. If there is not enough fuel to meet the requirements the JPO will coordinate with the Defense Energy Support Center (DESC) to have more fuel moved to locations in that theater.

Petroleum Support in developed theaters may be a combination of US owned wartime petroleum reserves (in a COCO facility), into-plane contracts, bulk delivery contracts, and host nation cross servicing agreements, and regional petroleum

infrastructure. These are pre-existing contracts and agreements put in place to meet the COmbatant Commander's war plan. They are reviewed on a regular basis and may be modified, eliminated, decreased, or increased, as required.

Petroleum Support in undeveloped theaters may rely on the Offshore Petroleum Discharge System (OPDS) in conjunction with the Inland Petroleum Discharge System (IPDS). The OPDS is a petroleum tanker ship ranging in capacity from 173mbls to 269mbls, and has the capability to pump petroleum product to the shore through either an underwater or above water hose-line. The IPDS receives the OPDS product into its 3.8 million gallon tactical petroleum terminal (18ea 210k gallon fabric tanks), and pumps it "downstream" through a tactical pipeline where it may be received at other inland terminal sites, including corps rear area petroleum supply units (bag farms), and airbases.

Note: 1 mbl "mike-barrel" = 1000 bls
1 bl = 42 gallons

Key Points on Fueling the Force

There are several important points to remember about Class III requisition and supply flow:

1. There is currently **no automated system** to manage bulk fuel.
2. Class III is supplied using a "**push system**". Units do not have to submit a requisition to receive fuel deliveries. GSU and DSU Class III activities provide fuel to forward customers based on fuel forecasts.
3. **Keep forward deployed Class III storage assets full.** This helps to ensure continuous responsive fuel support to combat forces on the battlefield.
4. **Units anticipate needs with fuel forecasts.** By providing 24, 48, and 72-hour projections for fuel consumption, units help CSS planners ensure all required Class III is delivered forward in time to maintain continuous support on the battlefield.
5. Units receive allocations for fuel based on **fuel availability** and the priority of their mission.

Fuel Organizations

Supply Company, FSB. To support one division maneuver brigade by providing the capability to receive, store, issue, and transport bulk fuel petroleum to the maneuver brigade and associated slice elements.

Supply and Services Company, MSB. This platoon operates the main Class III storage and issue supply point; provides vehicles and personnel for delivery/dispensing of Class III to the division rear units; and for line-haul transport of bulk Class III to the FSB supply companies. The platoon is responsible for receipt, storage, issue, quality control, and delivery of bulk Class III in support of the division units.

QM Supply Company (DS). Assigned to a rear or forward CSG with the basis of allocation one per 18,500 soldiers to support. Provides DS-level bulk fuel to non-divisional units. Also provides reinforcing support to FSBs and MSBs to enable them to support corps forces employed in the corps and division areas.

Petroleum Supply Company. Assigned to a rear or forward CSG or into a Petroleum Battalion in the COSCOM or into a TSC. Unit will receive, store, and transfer bulk petroleum to divisional and non-divisional units. It can establish and operate temporary petroleum storage facilities for general support of divisional and non-divisional units at no more than two locations. It will maintain a portion of the commands bulk petroleum reserve stocks. It can also lay, operate and retrieve 24 kilometers (15 miles) of petroleum hose line. Normally this unit cannot support more than one division slide of the corps.

Petroleum Mobile Lab Team. To provide limited quality assurance testing for petroleum groups or theater army. This testing includes:

- a. Providing technical assistance for handling, storing, sampling, identifying, and performing quality evaluation of petroleum products and their containers for all U.S. and allied forces throughout the theater.
- b. Provides all levels of petroleum testing on an twenty-four hour basis.
- c. Performs all levels of testing on ground and aviation fuels and package products to determine their suitability for use to include limited quality assurance testing.

Petroleum Pipeline and Terminal Operating Company. To operate petroleum pipeline and terminal facilities for receipt, storage, issue, and distribution of bulk petroleum products in support of an independent corps or theater army area of operations. Its capabilities include:

- a. Operating one tank farm complex to store 100,000 to 500,000 barrels of bulk petroleum depending on capacity and type of storage facilities available.
- b. Operates one tactical petroleum terminal (TPT) when permanent or semi-permanent facilities are not available. The terminal provides the equipment and storage capacity for offloading tanker ships over the shore.
- c. Ships bulk petroleum products through approximately 100 km (62 miles) of multi-product pipeline over level terrain.
- d. Operates fixed loading facilities for shipping bulk products daily by coastal tanker, barge, rail tank cars, and tank trucks.
- e. Maintains a prescribed reserve of bulk petroleum products for theater or independent corps.
- f. Operates a fuel system supply point (FSSP) for bulk issue operations.
- g. Installs and operates up to 8 Km (5 miles) of tactical hose line.

Systems and Methods for Fueling the Force

Fuel System Supply Point (FSSP)

The FSSP is the Army's primary means for the receipt and storage of bulk petroleum and for its issue to combat forces under tactical conditions. It also provides a way to switch from one supply source to another. A FSSP normally consists of two 350-GPM pumping assemblies, two 350-GPM filter/separators, six 10,000-gallon collapsible tanks, six bottom loading points, two 500-gallon collapsible drum filling points, and **six refueling points**. Approximately 2,400 feet of hose and 11 types of fittings connect these components of the fuel system.

The FSSP is used at distribution points to **provide storage facilities for transferring bulk fuel** from one means of transport to another and at dispensing facilities for bulk reduction or delivery of fuel to using vehicles. The FSSP can receive product from tank trucks, railway cars, pipelines, hose lines, and aircraft. Since it can also receive fuel from ocean tankers, it is capable of supporting beached operations. It can store **60,000 gallons** of bulk petroleum. It can store even more if additional or larger collapsible tanks are added. However, this expansion requires additional hoses, fittings, and valves. The FSSP can be moved from one place to another, and it can be divided in half to handle two different types of fuels at two different locations. It can also be changed to a 10-point, rapid-refueling system for rotary aircraft.

Forward Area Refueling Equipment (FARE)

The FARE system is designed for **refueling helicopters in forward areas**. It is **lightweight and can be flown** to the refueling point by helicopter or fixed-wing aircraft. The bulk fuel for the system is usually flown to the site in 500-gallon collapsible drums by utility or cargo helicopters. The FARE system can also use 3,000- or 10,000-gallon collapsible tanks, tank vehicles, and semitrailers as fuel sources. To do so, the adapters, which are included with the system, are used. The FARE system consists of a pumping assembly, filter/separator, two sets of discharge hose, nozzles, grounding equipment, and valves and fittings.

HEMTT Tanker Aviation Refueling System (HTARS)

The HTARS is a kit that consists of enough hoses, fittings, and nozzles to expand the HEMTT tankers capability to hot refuel up to four helicopters simultaneously using the on-board fuel-servicing pump. The equipment is lightweight, has manually operated controls, and is equipped with valved and swivel adapters that allow connections between camlock and unisex type fittings. This equipment can be used in forward areas. It can be transported in the storage box of the HEMTT tanker.

Refuel On the Move (ROM)

Refuel on the move (ROM) is normally accomplished as far forward on the battlefield as the tactical situation permits, prior to the tactical assembly area (TAA). The doctrinal purpose of ROM is to extend the time that ground maneuver forces can spend on the objective, although ROM can be tailored to other situations as well. When

vehicles enter a ROM site for refueling they receive a predetermined amount of fuel (usually timed) and they move-out to return to their convoy or formation. This distinguishes it from routine convoy refueling operations. ROM operations will normally be conducted from behind the division rear boundary to the rear of the brigade rear boundary. Although ROM may be configured in many ways (ROM, Mini-ROM, and Collapsible Tanks(s)), a ROM kit has been developed from existing hardware that will allow eight-point refueling from a 5,000-gallon tanker. Note: this is a form of supply point distribution.

Tactical Refuel

The purpose of the tactical refuel is to provide fuel to units at their location (unit distribution). The support platoon will use its resources (2,500 GL HEMTT fuelers) to refuel vehicles as rapidly as possible. On completion of the refuel the support platoon will draw more fuel at the BSA or designated area prior to entering another tactical refuel mission.

FUEL TYPES

MOGAS: Motor gasoline is used in commercial-type vehicles, many generators, and some types of cooking equipment. As new equipment is fielded the active force becomes less dependent on MOGAS for tactical operations. It will take longer for Reserve and National Guard units to move away from MOGAS usage.

DIESEL: The majority of the Army's ground fleet runs on diesel (kerosene) fuel to include many of its generators. Fortunately, this equipment can be easily converted to JP-8 or JP-5 by changing fuel filters until impurities are filtered out. However, the clean burning nature of JP-5 and JP-8 is incompatible with the on board smoke-generating systems of many diesel vehicles.

JP-4: Before the widespread conversion to JP-8 most of the Army's aviation assets used Jet Propellant-4 (gasoline type) aviation fuel. Army aviation assets have largely converted from JP-4 to the much safer JP-8 (kerosene type).

JP-8: The Army has transitioned the bulk of the active force to this all-purpose fuel. This conversion reduces the threat from fire, allows greater distribution flexibility, and eliminates the need for segregated storage and distribution systems.

JP-5: The Navy fuel JP-5 is the safest fuel available, and like JP-8 can be used in both ground (diesel engines) and air (turbine engines) equipment. Both JP-5 and JP-8 are kerosene type fuels and are inter-changeable, allowing for greater distribution flexibility.

CHAPTER 9 -- Section II

Theater Supply -- FUEL

Manuals Required to Complete Homework: FM 63-2, FM 63-3, and FM 54-30.

1. The key person for fuel determination in a theater is the _____.
_____. The JPO works in the J4 shop of the _____.
_____.

2. Petroleum support in undeveloped theaters may rely on the _____
_____ in conjunction with the _____.

3. The supply of bulk fuel into the division area is based on a _____
generated by consumers. The division G4 establishes the frequency of these
_____.

Ref. FM 63-2 p7-1.

4. List four (4) means by which the COSCOM may resupply the division with bulk fuel daily.

- a.
- b.
- c.
- d.

Ref. FM 63-2 p7-4.

5. Which unit provides retail bulk petroleum support to nondivisional units operating in the division sector?

Ref. FM 63-3 p6-3

6. Normally, a petroleum supply company cannot support more than _____.

Ref. FM 63-3 p6-3

7. Depending on its employment, the petroleum supply company may provide bulk GS level fuel to:

a.

b.

c.

d.

e.

Ref. FM 54-30 p8-3

8. It is recommended that the corps maintain the following minimum DOS within large developed theaters of operations:

_____	GS supply in the corps area,
_____	DS supply in the corps area, and
_____	DS supply in the DSA.

Ref. FM 54-30 p8-15

9. What is the recommended minimum bulk fuel stockage in DOS to support an independent corps in an undeveloped theater?

Ref. FM 54-30 p8-15

Notes