

Training and Evaluation Outline Report

Task Number: 05-6-0002

Task Title: Prepare an Engineer Estimate

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	FM 3-34	ENGINEER OPERATIONS	Yes	No
	FM 3-34.22	ENGINEER OPERATIONS - BRIGADE COMBAT TEAM AND BELOW	Yes	Yes
	FM 5-19	COMPOSITE RISK MANAGEMENT	Yes	No

Condition: The engineer element is supporting an engineer mission command element or maneuver task force (TF) Brigade Combat Team (BCT). The element receives a fragmentary order (FRAGO), an operation order (OPORD), or a supplementary order from higher headquarters (HQ) to prepare an engineer estimate. The staff section is required to perform the engineer estimate in support of the higher level OPORD. Some iterations of this task should be performed in MOPP.

Standard: The engineer element prepares an engineer estimate that gives the commander feasible courses of action (COAs) consistent with the supported commander's scheme of maneuver. The time required to perform this task is increased when conducting it in mission-oriented protective posture (MOPP) 4.

Special Equipment: None

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: None

Notes: None

TASK STEPS

- * 1. The Engineer officer initiates the engineer estimate by:
 - a. Analyzing the higher headquarters order.
 - b. Conducting Intelligence Preparation of the Battlefield (IPB).
 - c. Analyzing the engineer mission.
 - d. Conducting a risk assessment.

2. The element analyzes the higher headquarters order. Analysis includes:
 - a. The current situation (enemy and friendly).
 - b. The maneuver unit mission, commander's intent, and concept of the operation (two levels up).
 - c. The engineer mission, intent, and scheme of engineer operations (two levels up).
 - d. The assigned AO (normally prescribed by boundary lines).
 - e. The estimated time available.
 - f. The missions of adjacent units and their relation to the higher-headquarters plan.
 - g. How engineers (by task and purpose) contribute to the mission, commander's intent, and concept of the operation (two levels up).
 - h. The assets available.

3. The element conducts IPB. The four steps of the IPB are as follows:
 - a. Define the Operational Environment (OE). This includes identifying characteristics that influence friendly and threat operations. It helps determine the Area of Interest (AI) and identifies gaps in intelligence. It is also the basis for analyzing terrain, weather, civil considerations, and threat forces.
 - (1) The element analyzes the terrain, weather, and civil considerations and assesses their impact on military and engineer operations.

Note: For tactical operations, terrain is analyzed using the five military aspects of terrain (OAKOC) observation and fields of fire, avenues of approach, key terrain, obstacles, and cover and concealment.
 - (2) Existing and reinforcing obstacles are analyzed. Some examples of obstacles are:
 - (a) Natural, including swamps, deep forests, deep, steep ravines, rivers streams and hills or mountains with excessive slopes.
 - (b) Cultural, including urban areas, quarries, railroads, built up or elevated roads, and potential explosive hazards (EH) (fuel storage sites).
 - (c) Reinforcing obstacles are those constructed, emplaced, or detonated to enhance existing obstacles or terrain including minefields, tank ditches, abatis, tank walls, road craters, and wire entanglements.
 - b. Describe environmental effects. This involves evaluating the effects of all aspects of the environment and includes an examination of terrain, weather, and civil considerations.

(1) Snow, dust, humidity, and temperature extremes have an impact on Soldier efficiency and limit the potential of weapons and equipment.

(2) The element analyzes the effects of civil considerations to understand the population (demographics and culture), government, economics, NGOs, history, and other factors.

c. Evaluate the threat. This is a detailed study of enemy forces and their composition, organization, tactical doctrine, weapons, equipment, and supporting systems. Threat evaluation determines enemy capabilities and limitations and how they prefer to fight.

(1) The element must first understand the anticipated enemy mission (attack or defend) and consider how enemy engineers are doctrinally employed.

(2) The element must consider intelligence pertaining to recent enemy engineer activity or TTPs.

d. Develop possible enemy COAs. This involves developing possible enemy COAs, based on analysis of the previous steps.

(1) The element uses the enemy capability estimate to plot the enemy engineer effort (obstacle or survivability effort) and its probable location.

(2) Anticipate enemy engineer operations and their impact on the battle.

(3) Assess threat patterns and capabilities in an asymmetric environment.

(4) Consider enemy mission and doctrinal-employment of engineers.

(5) Estimate enemy engineer capabilities based on the S-2 order of battle, threat engineer organizations, personnel and equipment capabilities, recent activity or newly developed TTPs.

4. The element analyzes the engineer mission by:

a. Identifying specified and implied Mobility/Counter Mobility/Survivability (M/CM/S) and general engineering tasks.

(1) Specified tasks are specifically assigned to a unit by higher headquarters. They may be found in the base order, annexes (ISR annex), and overlays. For engineers, this could include—

- .. Obstacle zones.
- .. Obstacle belts with intents.
- .. Required number of breach lanes.
- .. Type of breach designated by the higher commander.

(2) Implied tasks must be performed to accomplish a specified task or the mission, but are not stated in the higher-headquarters order. For engineers, this could include—

- .. Obstacle handover coordination during a relief-in-place mission.
- .. UXO removal or assistance with EOD removal.
- .. Gap-crossing operation support if the crossing of a river is necessary to accomplish the mission.

b. Analyzing friendly mission and M/CM/S capabilities.

(1) The element must understand the friendly mission, commander's intent, and concept of the operation and understand how engineer capabilities contribute to the mission.

(2) The element works with the S-3 to determine the estimated time available. The Engineer officer can apply standard planning factors or known unit work rates to determine the total engineer capability.

c. Determining constraints. Constraints are restrictions placed on a unit by higher headquarters.

d. Determining risk. The element must understand how a risk involving an engineer capability specifically impacts combined arms operations and must advise the commander accordingly.

e. Conducting time analysis. The element must ensure that engineer operations are included in the combined arms time analysis. The element establishes an assumption of the time available while preparing the friendly capabilities portion of the running estimate and then refines the time analysis.

f. Developing essential tasks for M/CM/S. An essential task for M/CM/S is a specified or implied M/CM/S task that is critical to combined arms mission success. From these tasks, combined with the maneuver commander's guidance, the engineer officer and other staff representatives recommend essential tasks for M/CM/S to the maneuver commander during the mission analysis brief.

5. The element conducts risk assessment. Composite Risk Management (CRM) is an integrating process and occurs during all operation activities. CRM is the process of identifying, assessing, and controlling hazards (risks) that arise from operational factors and balancing that risk with mission benefits. CRM involves the following steps.

a. Identify hazards.

b. Assess hazards to determine risk.

c. Develop controls and make risk decisions.

d. Implement controls.

e. Supervise and evaluate.

Note: Note: Step 3 is accomplished during COA development, analysis, comparison, and approval. In Step 4, controls are implemented through mission orders, mission briefings, running estimates, and SOPs. Step 5 is conducted continuously throughout the operation.

6. Maintaining the running estimate is one of the CP functions that directly contribute to assessing and directing ongoing operations and planning future operations.

a. The construct of the running estimate also provides a framework for organizing and arranging information displays with the CP or cell.

b. During preparation and execution, staffs analyze the situation within their fields of interest in terms of mission variables to maintain running estimates.

c. Identifies major deficiencies that higher HQ must remedy, including recommendations for eliminating or reducing deficiencies.

d. Maintaining a running estimate enables the element to make recommendations to support the commander's decision making.

(Asterisks indicates a leader performance step.)

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. The Engineer officer initiated the engineer estimate.			
2. The element analyzed the higher headquarters order.			
3. The element conducted Intelligence Preparation of the Battlefield (IPB).			
4. The element analyzed the engineer mission.			
5. The element conducted a risk assessment.			
6. The element maintained a running estimate throughout the operation.			

Equipment (LIN)

Step ID	LIN	Nomenclature	Qty
No equipment specified			

Material Items (NSN)

Step ID	NSN	LIN	Title	Qty
No equipment specified				

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination. In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available, time available, and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, NBC Protection, FM 3-11.5, CBRN Decontamination.