

Training and Evaluation Outline Report

Status: Approved

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Task Number: 10-TM-5275

Task Title: Conduct Theater Petroleum Laboratory Operations

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Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the CASCOM, Fort Lee, Virginia foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary	Source Information
	AR 385-10	The Army Safety Program	Yes	No	
	ATP 3-34.5	Environmental Considerations	Yes	No	
	ATP 4-43	Petroleum Supply Operations	Yes	No	
	TB 43-180	Calibration and Repair Requirements for the Maintenance of Army Materiel	Yes	No	
	TM 10-6640-264-10	Technical Manual Operator's Manual for Petroleum Quality Analysis System-Enhanced (PQAS-E) NSN 6640-01-547-1760	Yes	No	
	TM 4-43.31 (Revision, March 25, 2015)	Petroleum Laboratory Testing and Operations	Yes	Yes	

Conditions: The petroleum laboratory team has received an operations order (OPORD) from higher headquarters (HQ) to conduct petroleum laboratory operations in the designated area of operations. The petroleum laboratory team is established and operational to support the higher HQ directed mission. The petroleum laboratory team has primary access to main supply routes, approved external logistical support, and it is accessible to all supported and supporting customers/units. Continuous digital and analog communications are established and maintained. All Army, joint, and host nation applicable regulations, approved internal and external tactical standard operating procedures (TSOP), technical manuals (TMs), and field manuals (FMs) are on-hand as reference material. The petroleum laboratory team has been provided guidance on rules of engagement for this mission and are continuously receiving updates as situations and mission requirements change. Threat capabilities include opposing forces which have the ability to gather information, interact with hostile force sympathizers, coordinate suicide bombings, set up improvised explosive devices, coordinate air support, and execute reinforced platoon/squad operations in a chemical, biological, radiological, and nuclear (CBRN) environment. Mission, enemy, terrain and weather, troops and support available-time available and civil considerations (METT-TC) identified constraints must be considered. The petroleum laboratory team is not likely to be attacked with hostile enemy fire or chemical agents. This task will be performed under either/or a combination of a static, dynamic, complex, single, or hybrid operational environment as outlined in the training evaluation matrix of this task. All authorized equipment is on hand and operational. All petroleum laboratory team personnel are available to provide support during all day and night operations. Specified time constraints are identified in the operations order. The petroleum laboratory team has adequate time to prepare. Unit leaders are present in the area of operations to provide further guidance as necessary. This task should not be trained in MOPP 4.

Standards: The petroleum laboratory team conducts petroleum laboratory operations in the designated area of operations with the use of all available equipment and personnel within the specified time constraints in the mission OPORD and in accordance with (IAW) the approved Army standards identified in the Task Evaluation Criteria Matrix and in the collective task performance steps which are included in this task below, commander's guidance, applicable internal and external TSOPs, and approved Army regulations.

LEADER STATEMENT: For the purpose of this task, an Army leader is defined as a Soldier who is in a senior officer, warrant officer, and/or noncommissioned officer (NCO) position designated by grade, paragraph, and title on the units Table of Organization and Equipment (TOE). Leaders are not only defined as officers, warrant officers, noncommissioned officers, and Army civilians in leadership positions but also include individuals who are Subject Matter Experts (SME) which possess the requisite knowledge and skill set to perform a particular task (For example, conduct an operation, provide logistics, or operate specific technical equipment, etc.) at the tactical through strategic level as the situation and/or mission(s) dictates. Leaders may also be personnel assigned to the unit and designated as a leader by the unit commander.

Objective Task Evaluation Criteria Matrix:

Plan and Prepare		Execute					Assess		
Operational Environment	Training Environment (L/V/C)	Leaders Present at Training/Required	Present at Training/Required	External Eval	Performance Measures	Critical Performance Measures	Leader Performance Measures	Evaluator's Observed Task Proficiency Rating	Commander's Assessment
SQD & PLT									
Dynamic (Single Threat)	Night	Commander(s) or Unit Key Leader(s) will determine if training will be conducted under live, virtual, or constructive training environmental conditions using corresponding event types (for example, STT, STX, FTX, etc.) in order to facilitate the Crawl, Walk, Run methodology of training progression to support Unit Training Management (UTM) and recommended Combined Arms Training Strategy (CATS). All external evaluations (EXEVAL's) must be conducted in a live environment.	≥75%	≥80%	Yes	≥80%	≥85%	T	T
						All		T-	T-
Static (Single Threat)	Day		60-74%	60-79%	No	65-79%	75-84%	P	P
						<All		P-	P-
		≤59%	≤59%		≤64%	≤74%	U	U	

Remarks: Task steps and performance measures are arranged in a logical order and are not intended to be interpreted as a “required order” for performance. These task steps and/or performance measures of collective task may not always be applicable to every unit. Prior to evaluation, coordination should be made between the evaluator, the unit itself, and the evaluated units' higher headquarters (if required) to determine the task step(s) and/or performance measure(s) that may be omitted and/or must be performed. Training begins with the execution of pre-combat checks and inspections. Training ends when designated training objectives for the particular training events or exercises are performed to Army standard. Unit leadership should conduct an After Action Report (AAR) to determine future training requirements for the unit.

Task Evaluation Criteria Matrix Operational Environment (OE) Definitions:

Static—a static training environment has aspects of operational variables needed to stimulate mission variables that are fixed throughout the unit's execution of the task.

Dynamic—a dynamic training environment has operational variables and threat Tactics, Techniques, and Procedures (TTP) for assigned countertasks

that change in response to the execution of friendly force tasks.

Complex—a complex training environment requires a minimum of four—terrain, time, military (threat), and social (population)—or more operational variables; brigade and higher units require all eight operational variables to be replicated in varying degrees based on the task being trained.

Single threat—a single threat in a training environment is a conventional force, irregular force, criminal element, or terrorist force.

Hybrid threat—a hybrid threat in a training environment uses diverse and dynamic combination of conventional forces, irregular forces, terrorist forces, and criminal elements unified to achieve mutually benefitting effects.

To obtain a T or T- this task must be conducted in a dynamic and complex environment with 4 plus OE variables and a hybrid threat at night with 75% or more leaders present, greater than 80% of Soldiers present, receive a “GO” on 80% or more of the performance measures, ALL of the critical performance measures and at least 80% “GO” on the leader performance measures. Must be conducted during an external evaluation.

Task steps and measures were developed using the Plan, Prepare, Execute, and Assess (PPEA) construct to reinforce the operations process and is implied throughout the Training & Evaluation Outline (T&EO) as applicable.

Notes: REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS: You can help improve this collective task. If you find any errors, or if you would like to recommend any improvements to the procedures in this collective task, please let us know. The preferred method is to submit a DA Form 2028 (Recommended Changes to Publications and Blank Forms) with your recommended changes via email to usarmy.lee.tradoc.mbx.cascom-g3-collective@army.mil. Your recommended changes will be reviewed, validated to ensure approved Army or joint doctrine supports your recommendation(s), implemented as applicable, and a reply will be furnished to you.

Safety Risk: Low

Task Statements

Cue: The petroleum laboratory team has received an OPORD from higher HQ to conduct laboratory operations.

DANGER

Fuels and solvents are flammable and may cause irritation to the eyes or skin. Wear protective goggles, gloves, and an apron; avoid contact with skin, eyes, and clothing. Use in well ventilated areas and keep away from heat or flame. Follow all Material Safety Data Sheet Hazardous Materials Identification System, ISO 9000-2, Lab Safety Operating Procedures, and related instructions. Failure to comply may result in personnel injury or death.

WARNING

Safe and efficient aviation fuel laboratory operations depend on the observance of well-established safety practices and a thorough knowledge of testing procedures. The testing procedures often involve using equipment and materials that are potentially hazardous. Injury to personnel and damage to equipment by fire, chemicals, dangerous pressures and vacuums, or misuse of equipment can be avoided by alert and responsible laboratory technicians. Observe all warnings, safety precautions, and safety regulations. Strict observance of established safety, care, and handling procedures will allow laboratory personnel to perform their duties in a safe and hazard-free environment.

CAUTION

DO NOT connect any cables or apply power before properly grounding the Petroleum Quality Analysis System – Enhanced (PQAS-E). Lack of equipment grounding or improper grounding can cause severe injury or death to personnel, or damage to equipment. To prevent possible shock, ground strap must be connected to ground rod before connecting strap to shelter. Ground strap should not obstruct the entrance door, interfere with shelter cables, or create a safety hazard. Ground the PQAS-E in accordance with current doctrine for Grounding of Systems. In case of a mercury spillage, do NOT vacuum or sweep the area as this will disperse mercury throughout the laboratory.

MOPP 4: Never

MOPP 4 Statement: This task is not intended to be performed in Mission-Oriented Protective Posture Level 4 (MOPP4). However, if necessary during an unexpected interim Chemical, Biological, Radiological, and Nuclear (CBRN) situation, ensure personal protective measures have been taken before proceeding with any measure to protect or decontaminate equipment. Failure to observe this precaution may result in serious illness, injury, or death to personnel by CBRN agents. Perform immediate operational or thorough decontamination procedures in accordance with applicable equipment TM's, CBRN doctrine, and unit TSOP as the mission, resources, and tactical situation permits. The CBRN Specialist should test unit equipment for levels of contamination after the all clear signal has been given and prior to resuming mission operations.

NVG: Never

NVG Statement: Night vision goggles are not required to conduct this task. However, they may be required when conducting sustainment unit operations, during moment, or Soldier duties as assigned.

Prerequisite Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	10-TM-0002	Establish Petroleum Laboratory Operations	10 - Quartermaster (Collective)	Approved

Supporting Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	10-CO-0003	Prepare Petroleum Laboratory for Certification	10 - Quartermaster (Collective)	Approved
	10-TM-0003	Conduct Petroleum Laboratory Operations	10 - Quartermaster (Collective)	Approved
	10-TM-5276	Conduct Petroleum Quality Surveillance Testing	10 - Quartermaster (Collective)	Approved
	10-TM-5871	Facilitate Petroleum Quality Surveillance Program	10 - Quartermaster (Collective)	Approved

OPFOR Task(s): None

Supporting Individual Task(s):

Step Number	Task Number	Title	Proponent	Status
1.	101-92L-4410	Plan Quality Surveillance Operations for Petroleum Facilities.	101 - Quartermaster (Individual)	Approved
1.	101-23A-6001	Implement Bulk Petroleum Quality Surveillance Programs (Brigade and Below)	101 - Quartermaster (Individual)	Approved
1.	101-92L-4406	Validate Laboratory Operations.	101 - Quartermaster (Individual)	Approved
2.	101-23A-6001	Implement Bulk Petroleum Quality Surveillance Programs (Brigade and Below)	101 - Quartermaster (Individual)	Approved
2.	101-92L-4406	Validate Laboratory Operations.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1410	Operate the Petroleum Quality Analysis System - Enhanced (PQAS-E)	101 - Quartermaster (Individual)	Approved
3.	101-92L-1394	Perform Sampling and Gauging Procedures on Petroleum Products.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1414	Perform a Cloud Point Test of Petroleum Products Using a Standard Method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1415	Perform a Color test of Petroleum Products using a standard Method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1416	Perform a Vapor Pressure test of Petroleum Products using a standard method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1406	Determine Density, Relative Density or API Gravity of Crude and Liquid Petroleum Products	101 - Quartermaster (Individual)	Approved
3.	101-92L-1426	Compare Test Results to Specification Requirements	101 - Quartermaster (Individual)	Approved
3.	101-92L-1420	Perform a Pour Point of Petroleum Products Using a Standard Test Method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1430	Determine Lead and Sulfur content in Fuels by X-Ray Spectroscopy	101 - Quartermaster (Individual)	Approved
3.	101-92L-1432	Perform a Viscosity Test Using a Standard Method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1433	Perform a Distillation and Cetane Index Test of Petroleum Products.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1434	Perform a Flash Point test on petroleum products using a standard method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1429	Determine Density and Relative Density of Liquids by Digital Density Meter.	101 - Quartermaster (Individual)	Approved

Supporting Drill(s): None

Supported AUTL/UJTL Task(s):

Task ID	Title
ART 4.1.3.3.3	Provide Petroleum Quality Assurance and Quality Surveillance

TADSS

TADSS ID	Title	Product Type	Quantity
No TADSS specified			

Equipment (LIN)

LIN	Nomenclature	Qty
No equipment specified		

Materiel Items (NSN)

NSN	LIN	Title	Qty
No materiel items 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 the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card. It is the responsibility of all Soldiers and Department of the Army civilians to protect the environment from damage. Army personnel must take care of the environment; that is, practice environmental stewardship. All operations conducted on Army installations will comply with federal, state, local and host-nation environmental requirements and Army regulations. Army personnel will sustain compliance at all sites in the U.S. and abroad, establishing good relationships with communities and regulators.

Environmental risk management consists of the following steps:

- a. Identify Hazards. Identify potential sources for environmental degradation during analysis of METT-TC factors. This requires identification of environmental hazards. An environmental hazard is a condition with the potential for polluting air, soil, or water and or destroying cultural and historical artifacts.
- b. Assess the Hazard. Analyze potential severity of environmental degradation using the Environmental Risk Assessment. Severity of environmental degradation is considered when determining the potential effect an operation will have on the environment. The risk impact value is defined as an indicator of the severity of environmental degradation. Quantify the risk to the environment resulting from the operation as extremely high, medium, or low, using the environmental risk assessment matrixes.
- c. Make Environmental Risk Decisions. Make decisions and develop measures to reduce high environmental risks.
- d. Brief Chain of Command. Brief chain of command (to include installation environmental office, if applicable), on proposed plans and pertinent high-risk environmental matrixes. Risk decisions are made at a level of command that corresponds to the degree of risk.

Safety: In a training environment, leaders must perform a risk assessment in accordance with current Risk Management Doctrine. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer 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 current CBRN doctrine.

Leaders must verify the structural soundness of all training and evaluation plans from a safety viewpoint. Leaders must conduct training at levels consistent with the abilities of the Soldiers being trained. They must instill an awareness of individual safety in all subordinate leaders and Soldiers. Soldiers must constantly be alert for and avoid situations that may result in injury or death.

Be aware of the following:

- a. At the training site, leaders must establish training safety overview procedures. Safety procedures should emphasize the adherence to standards, consideration of environmental factors (for example, wet bulb), risk assessment, and factors contributing to and aiding in the prevention of accidents. Responsible individuals must know how to balance the risks against the training requirements and monitor conditions for safety and health hazards (to eliminate or control them). Leaders must ensure the welfare of their Soldiers in all situations.
- b. Leaders must establish a buddy system for safety measures. Soldiers should maintain a safety watch on each other, with emphasis on individual safety training, and first aid responsibilities. All unsafe conditions and unsafe acts must be recognized and reported. Soldiers must be alert to human error and know the capabilities and limitations of the equipment and vehicles they use. Following the proper safety procedures preserves troop strength by preventing personnel losses through accidents.