

Training and Evaluation Outline Report

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Task Number: 10-TM-0003

Task Title: Conduct 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 200-1	ENVIRONMENTAL PROTECTION AND ENHANCEMENT	Yes	No	
	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	Technical Bulletin 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 has received an operations order (OPORD) from higher headquarters (HQ) to conduct quality analysis, surveillance, specification and testing of petroleum samples drawn by the supported unit. Unit operations are established in support of a higher HQ operational mission. Supported units are located in the area of responsibility and have primary access to main supply routes and external logistical support if required. Operations are accessible to all supported and supporting customers/units and higher headquarters. Continuous digital and analog communications have been established. All applicable regulations, tactical standard operating procedures (TSOP), technical manuals (TMs), and field manuals (FMs), and quality surveillance directives are on-hand as reference material. The unit elements have been provided guidance on rules of engagement for this mission. 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/team 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 is not likely to be attacked with hostile enemy fire or chemical agents. This task will be performed under various environmental and threat conditions as outlined or required in the training evaluation matrix. All authorized petroleum analysis laboratory equipment is on hand and operational. All assigned personnel are available to conduct petroleum quality surveillance testing during all day and night operations. Specified time constraints are identified in the operations order. The section has adequate time to prepare. Unit leaders are present in the area of operations. This task should not be trained in MOPP 4.

Standards: The petroleum laboratory conducts quality analysis, surveillance, specification, and testing of petroleum samples with all available assets and resources 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 which is included in this task below, commanders guidance, applicable internal and external TSOPs, and approved Army regulations.

LEADER STATEMENT: An Army leader is anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals. Leadership is not limited to or synonymous with an assigned duty, position, or given rank as it also manifests itself in both informal and collective forms. Informal leadership provides knowledge, experience, and technical expertise while collective leadership results through the combined effects and synergies of leaders at different levels and experience collaborating to achieve a common purpose. Informal and collective leadership can include positions with an expanded scope of responsibility, significance and operational / mission implications. Therefore, for the purpose of training this task, Leaders are not only defined as officers, warrant officers, noncommissioned officers, and Army civilians 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 equipment, etc.) at the tactical through strategic level as the situation and/or mission(s)

dictates.

Live Fire: No

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	>=85%	>=80%	Yes	>=91%	All	>=90%	T	T
		75-84%			80-90%		80-89%	T-	T-
Static (Single Threat)	Day	65-74%	75-79%	No	65-79%	<All		P	P
		60-64%	60-74%		51-64%		<=79%	P-	P-
		<=59%	<=59%		<=50%			U	U

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). Per FM 7-0, all external evaluations (EXEVAL's) must be conducted in a live environment.

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 Definitions:

Static: Aspects of operational variables (PMESII-PT) needed to stimulate mission variables (METT-TC) are fixed throughout the unit's execution of the

task.

Dynamic: Operational variables and Threat TTPs for assigned counter- tasks change in response to the execution of BLUFOR's task.

Complex: 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 (PMESII-PT) to be replicated in varying degrees based on the task being trained.

Single Threat: Regular, irregular, criminal, or terrorist.

Hybrid Threat: The diverse and dynamic combination of regular forces, irregular forces, terrorist forces, and/or 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 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@mail.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 has received an OPORD from higher HQ to conduct quality analysis, surveillance, specification, and testing of petroleum samples.

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 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 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.

- k. Refer to equipment TM to troubleshoot any problems encountered during PMCS.
 - l. Document faults that could not be repaired on the equipment inspection and maintenance worksheet and report it to supervisors, higher headquarters, and/or supporting maintenance unit for repair.
 - m. Ensure laboratory equipment is calibrated as required.
- +* 7. Leaders manage administrative functions as appropriate, directed, or required.
- a. Conduct troop leading procedures.
 - b. Manage risk management assessments.
 - c. Provide operational status reports to higher HQ IAW TSOP.
 - d. Maintain communications with higher HQ IAW TSOP.
 - e. Monitor before, during, and after preventive maintenance checks and services (PMCS) on organic equipment.
 - f. Employ Physical Security Measures as required.
 - g. Enforce operations security (OPSEC) procedures at all times.
 - h. Enforce safety regulations and established unit's internal and external TSOP's.
 - i. Ensure that all Army sites and operations attain and sustain 100 percent compliance with environmental laws and regulations in a climate of changing requirements to prevent a notice of violation or a fine for not complying with following host nation, local, state, federal, higher headquarters environmental directives and policies.
 - j. Direct destruction of unit equipment to prevent enemy use as situations dictate.
 - k. Ensure that Soldiers are trained to conduct mission operations in Offense, Defense, Stability, and Defense Support of Civil Authorities (DSCA) Operations.

Task Performance Summary Block										
Training Unit			ITERATION							
			1		2		3		4	
Date of Training per Iteration:										
Day or Night Training:			Day / Night		Day / Night		Day / Night		Day / Night	
			#	%	#	%	#	%	#	%
Total Leaders Authorized		% Leaders Present								
Total Soldiers Authorized		% Soldiers Present								
Total Number of Performance Measures		% Performance Measures 'GO'								
Total Number of Critical Performance Measures		% Critical Performance Measures 'GO'								
Live Fire, Total Number of Critical Performance Measures		% Critical Performance Measures 'GO'								
Total Number of Leader Performance Measures		% Leader Performance Measures 'GO'								
MOPP LEVEL										
Evaluated Rating per Iteration T, T-, P, P-, U										

Mission(s) supported: None

MOPP 4: Never

MOPP 4 Statement: This task is not intended to be performed in MOPP 4. 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-0001	Conduct Petroleum Quality Surveillance Testing on Ground and Aviation Fuels	10 - Quartermaster (Collective)	Approved

OPFOR Task(s): None

Supporting Individual Task(s):

Step Number	Task Number	Title	Proponent	Status
1.	101-92A-8064	Prepare Monthly Bulk Petroleum Accounting Summary	101 - Quartermaster (Individual)	Approved
1.	101-92L-4406	Validate Laboratory Operations.	101 - Quartermaster (Individual)	Approved
1.	101-92L-2312	Supervise the Operation of a Petroleum Additive Injector Assembly	101 - Quartermaster (Individual)	Approved
1.	101-92L-2313	Supervise Operation and Maintenance of Petroleum Test Kits	101 - Quartermaster (Individual)	Approved
1.	101-92L-2300	Supervise Petroleum Laboratory Testing Procedures.	101 - Quartermaster (Individual)	Approved
1.	101-92L-2304	Supervise Environmental Stewardship Measures in a Petroleum Laboratory	101 - Quartermaster (Individual)	Approved
1.	101-92L-2315	Supervise Petroleum Quality Analysis System - Enhanced (PQAS-E) Operations	101 - Quartermaster (Individual)	Approved
1.	101-92L-4410	Plan Quality Surveillance Operations for Petroleum Facilities.	101 - Quartermaster (Individual)	Approved
2.	101-92L-2314	Review Petroleum Laboratory Test Reports.	101 - Quartermaster (Individual)	Approved
2.	101-92A-8060	Manage Bulk Petroleum Operations	101 - Quartermaster (Individual)	Approved
2.	101-92L-3404	Direct Mobile Laboratory Operations	101 - Quartermaster (Individual)	Approved
2.	101-92L-4406	Validate Laboratory Operations.	101 - Quartermaster (Individual)	Approved
2.	101-92L-3400	Direct Petroleum Laboratory Procedures	101 - Quartermaster (Individual)	Approved
3.	101-92L-1319	Perform an Existent Gum test of petroleum products by Jet Evaporation.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1421	Perform a Thermal Oxidation Stability test on Aviation Fuels Using a Standard Method.	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-1419	Perform an Electrical Conductivity test of Aviation and Distillate Fuels that Contain a Static Dissipater Additive.	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-1423	Determine the amount of Fuel System icing Inhibitor (FSII) in aviation fuels using a standard method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1426	Compare Test Results to Specification Requirements	101 - Quartermaster (Individual)	Approved
3.	101-92L-1410	Operate the Petroleum Quality Analysis System - Enhanced (PQAS-E)	101 - Quartermaster (Individual)	Approved
3.	101-92L-1413	Operate a Petroleum Additive Injector Assembly	101 - Quartermaster (Individual)	Approved
3.	101-92L-1422	Determine water separation Characteristics of Aviation Fuel using a standard method	101 - Quartermaster (Individual)	Approved
3.	101-92L-1424	Perform a Particulate Contamination test on Aviation Fuel by Laboratory Filtration method.	101 - Quartermaster (Individual)	Approved
3.	101-92L-1427	Employ Petroleum Test Kits.	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-1418	Perform Water Reaction test of Aviation Fuels using a standard Method .	101 - Quartermaster (Individual)	Approved
3.	101-92L-1428	Determine the Acidity of Aviation Turbine Fuels 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
3.	101-92L-1430	Determine Lead and Sulfur content in Fuels by X-Ray Spectroscopy	101 - Quartermaster (Individual)	Approved
3.	101-92L-1431	Perform Freezing Point of Test of Aviation Fuels Using a Standard Method	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-1352	Perform a Particulate Contamination Test on an Aviation fuel Sample Drawn by Line Sample Method.	101 - Quartermaster (Individual)	Approved
4.	101-92L-1425	Prepare Petroleum Laboratory Analysis Reports	101 - Quartermaster (Individual)	Approved
4.	101-92L-2314	Review Petroleum Laboratory Test Reports.	101 - Quartermaster (Individual)	Approved
4.	101-92L-2300	Supervise Petroleum Laboratory Testing Procedures.	101 - Quartermaster (Individual)	Approved
5.	101-92L-2304	Supervise Environmental Stewardship Measures in a Petroleum Laboratory	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.

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.

