

Training and Evaluation Outline Report

Status: Approved

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Task Number: 05-PLT-5170

Task Title: Establish a Water Well

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the Ft. Leonard Wood, MSCoE 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
	ATP 5-19 (Change 001 09/08/2014 78 Pages)	RISK MANAGEMENT http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/atp5_19.pdf	Yes	No
	DD FORM 2678	WELL DRILLERS LOG (LRA)	Yes	No
	DD FORM 2679	PIPING AND CASING LOG (LRA)	Yes	No
	NTRP 4-04.2.13/TM 3-34.49/AFMAN 32-1072	Water-Well Drilling Operations (HTTPS://NDLS.NWDC.NAVY.MIL) (https://armypubs.us.army.mil/doctrine/DR_pubs/dr_aa/pdf/tm3_34x49_PH_Navy.pdf)	Yes	Yes

Conditions: The team is given a drill site with organic equipment, materials, and a mission to perform well-drilling operations.

Note: The Commander must still determine at what level of training they would want the element to perform. Crawl, walk or run. This can only be determined after consideration as to the units training level.

The Commander prior to evaluating an element in the conduct of the task must determine if it will be conducted in a Live, Virtual, or Constructive environment, additionally it must also be determined which condition as described below that the element will conduct the task. The selection made for this task is at a trained level of proficiency. The commander must determine which of the environments below will best suit the unit and the proficiency level at which the unit is. When conducting crawl or walk level training units should not increase the intensity until the unit has achieved the standards and then unit trainers should include variables that increase proficiency in all conditions.

Note: The condition statement for this task is written assuming the highest training conditions reflected on the Task Proficiency matrix required for the evaluated unit to receive a "fully trained" (T) rating.

Note: Condition terms definitions:

Dynamic Operational Environment: Three or more operational and two or more mission variables change during the execution of the assessed task. Operational variables and threat Tactics, Techniques, and Procedures (TTPs) for assigned counter-tasks change in response to the execution of Blue Forces (BLUFOR) tasks.

Complex Operational Environment: Changes to four or more operational variables impact the chosen friendly COA/mission. Brigade and higher units require all eight operational variables of Political, Military, Economic, Social, Infrastructure, Information, Physical environment, and Time (PMESII-PT) to be replicated in varying degrees based on the task being trained.

Single threat: Regular, irregular, criminal or terrorist forces are present.

Hybrid threat: Diverse and dynamic combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefiting effects.

This task should not be trained in MOPP 4.

Standards: The team prepares the site according to the multiservice procedures for well-drilling operations. The site is operational according to the timeline established in the operations order (OPORD).

Note: Leaders are defined as the Commander, Executive Officer, First Sergeant, Operations Sergeant, Platoon Leaders, Platoon Sergeants, Squad Leaders, and Team Leaders.

Live Fire Required: No

Objective Task Evaluation Criteria Matrix:

Plan and Prepare		Execute					Assess	
Operational Environment	Training Environment (LW/C)	Training/Authorized	% of Leaders Present at	External Eval	% Performance Measures 'GO'	% Critical Performance Measures 'GO'	% Leader Performance Measures 'GO'	Task Assessment
SQD & PLT								
Dynamic (Single Threat)	Night	>=85%		Yes	>=91%	All	>=90%	T
		75-84%	>=80%		80-90%		80-89%	T-
Static (Single Threat)	Day	65-74%	75-79%	No	65-79%	<All	<=79%	P
		60-64%	60-74%		51-64%			P-
		<=59%	<=59%		<=50%			U

Remarks: None

Notes: None

Safety Risk: Low

Task Statements

DANGER

Leaders have an inherent responsibility to conduct Risk Management to ensure the safety of all Soldiers and promote mission accomplishment.

WARNING

Risk management is the Army's primary decision-making process to identify hazards, reduce risk, and prevent both accidental and tactical loss. All Soldiers have the responsibility to learn and understand the risks associated with this task.

CAUTION

Identifying hazards and controlling risks across the full spectrum of Army functions, operations and activities is the responsibility of all Soldiers.

Performance Steps and Measures

NOTE: Assess task proficiency using the task evaluation criteria matrix.

NOTE: Asterisks (*) indicate leader steps; plus signs (+) indicate critical steps.

STEP/MEASURE	GO	NO-GO	N/A
+* 1. The team leader conducts troop leading procedures .			
a. Requests augmentee support.			
b. Directs earthmoving or clearing assets, if needed to prepare the site.			
+* 2. The team leader supervises site preparation.			
+ a. Specifies where to level the ground for the rig set up.			
+ b. Specifies mud pit design.			
+ c. Specifies what design to use for the drilling operation and the hole design.			
+ 3. The section installs rotary drill equipment.			
+ a. Sets and levels the rig.			
+ b. Raises and levels the mast.			
+ c. Digs the mud pits.			
+ d. Performs mud mixing to the desired viscosity.			
+ e. Sets up two 3,000-gallon water bladders.			
+ f. Sets up a mud laboratory.			
g. Sets up lighting for night operations.			
h. Sets up a fuel bladder for long duration of drilling.			
+ 4. The team drills the well; uses determined drilling methods as needed.			
Note: The team leader determines the method of drilling and when to use the required method.			
+ a. The team uses the air/foam drilling method.			
(1) Hooks up the kelly to the air compressor.			
(2) Installs the foam container in the system.			
(3) Filled the injection system with water.			
(4) Installs a down-hole hammer bit.			
(5) Performs a sand content test on the filling mud.			
(6) Hooks up the desander system.			
(7) Performed a filter cake test on the drilling mud.			
(8) Performs a viscosity test.			
(9) Performs a test for the phosphor pH factor.			
(10) Checks the mud weight.			
b. The team uses the mud drilling method.			
(1) Hooks up the kelly to the mud pump.			
(2) Checks the mud weight.			
(3) Performs a sand content test on the drilling mud.			
(4) Hooks up the desander system.			
(5) Performs a filter cake test on the drilling mud.			
(6) Performs a viscosity test.			
(7) Performed a test for the phosphor pH factor.			
(8) Installed a drill bit.			
+* 5. The team leader supervises a design of the steel/polyvinyl chloride (PVC) casing in the drilled hole.			
+ a. Approves the well design.			
+ b. Verify that the E-logger is working properly.			
+ c. Calculates the E-logger findings, and developed a design.			
+ d. Selects proper screens for the design of the water flow by gallons per minute (GPM).			
+ 6. The team performs equipment testing.			
+ a. Sets up the E-logger through drilling mud.			
+ b. Extends the E-logger probe.			
+ c. Performs readings, and annotated them on the graph.			
d. Installs a spider base table if using oversize casing.			
+ 7. The team leader supervises the placement of the steel/PVC casing in the drilled hole.			
+ a. Verify if the draw works could handle the weight of the steel casing if it was over a certain depth.			
b. Thins the drilling mud to install the PVC casing.			
+ c. Floats in the steel casing if the draw works could handle the weight of the steel casing.			
+ 8. The team installs the casing and the screen.			
a. Installs a spider base table if using oversize casing.			

Step Number	Task Number	Title	Proponent	Status
1.	71-CO-5100	Conduct Troop Leading Procedures for Companies	71 - Combined Arms (Collective)	Approved
14.	05-CO-0018	Conduct Report Procedures	05 - Engineers (Collective)	Approved

OPFOR Task(s):

Task Number	Title	Status
71-2-9002	OPFOR Ambush(Company and below)	Approved
71-CO-9004	OPFOR Reconnaissance Attack (Company and below)	Approved

Supporting Individual Task(s):

Step Number	Task Number	Title	Proponent	Status
	052-12N-4001	Manage a Horizontal Construction Project	052 - Engineer (Individual)	Approved
	052-196-3010	Conduct an Engineer Resource Assessment	052 - Engineer (Individual)	Approved
	052-210-1006	Comply with Host Nations' Environmental Requirements	052 - Engineer (Individual)	Approved

Supporting Drill(s): None

Supported AUTL/UJTL Task(s):

Task ID	Title
ART 4.1.7.3	Provide Technical Engineer Support

TADSS

TADSS ID	Title	Product Type	Quantity
No TADSS specified			

Equipment (LIN)

LIN	Nomenclature	Qty
D95754	Drilling Machine Well: Rotary Truck Mounted 600 Feet Minimum	1
T94171	Truck Well Drilling Support	1
K28517	KIT WELL COMPL WATER	1

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. .

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. 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 FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. .