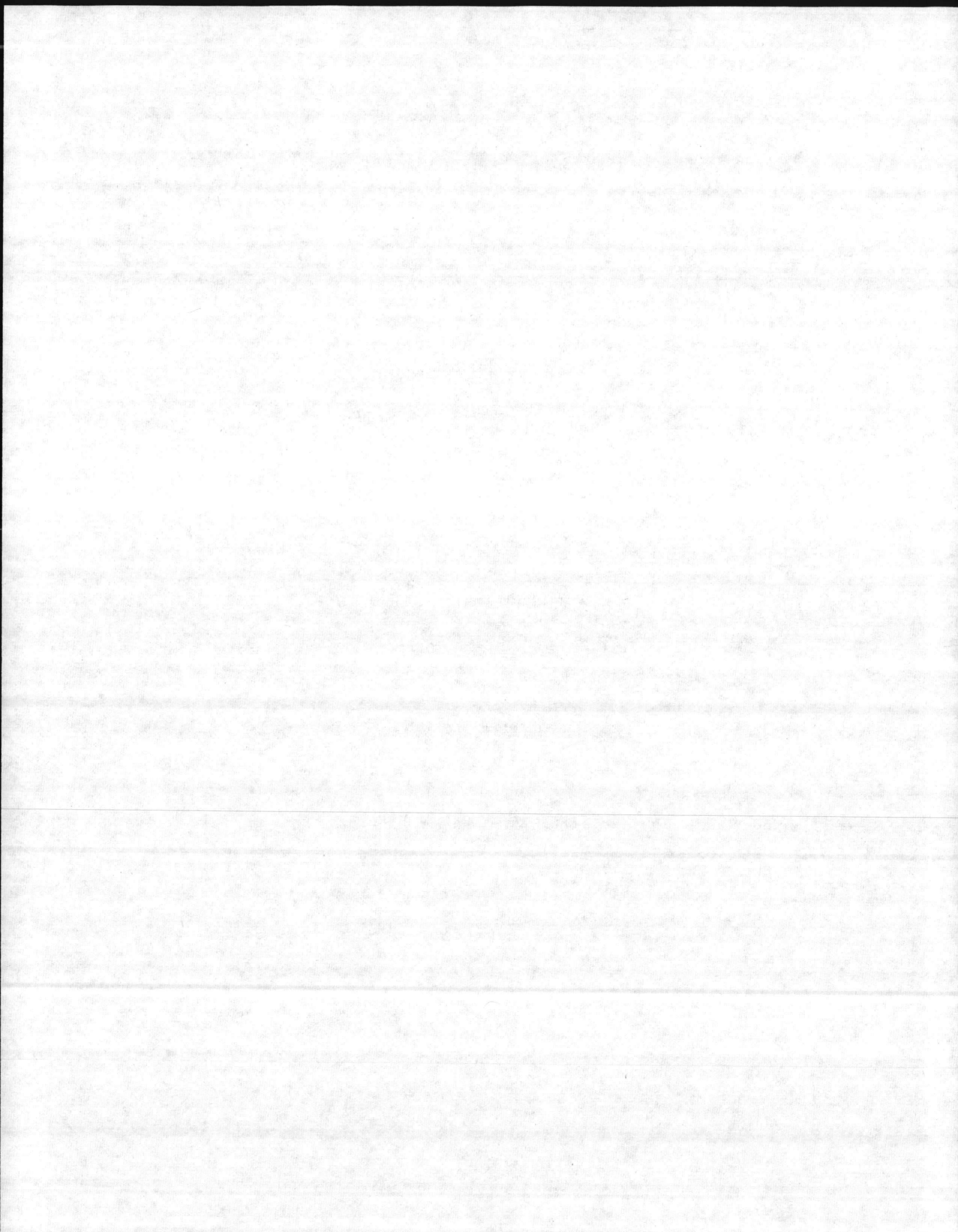


UNITED STATES MARINE CORPS
Marine Corps Engineer School
Marine Corps Base
Camp Lejeune, North Carolina 28542

PROGRAM OF INSTRUCTION
(POI)

UTILITIES CHIEF COURSE
(SSC: 11E)

EFFECTIVE JANUARY 1983



UNITED STATES MARINE CORPS
Marine Corps Engineer School
Marine Corps Base
Camp Lejeune, North Carolina 28542

ACAD/BER/lw
1500/05

02 SEP 1982

1. The program of instruction (POI) for the Utilities Chief Course is submitted in accordance with MCO 5400.42 for review and approval.
2. This POI has been reviewed and updated in accordance with MCO P1500.12L (Formal Schools Catalog) and MCDECO 1553.1 (Instructional Systems Development). It contains no modifications to the basic purpose, scope, content or fundamental policies for the course as previously approved by the Commandant of the Marine Corps.



K. P. MILLICE, JR.
Colonel USMC
Commanding

UNITED STATES MARINE CORPS
Marine Corps Development and Education Command
Quantico, Virginia 22134

E 035/TMH/jc
1513

4 NOV 1982

1. This program of instruction has been reviewed both for course content and for adherence to the provisions of MCO P1500.12L and MCDECO P1553.1 and is approved for instructional purposes subject to the requirements noted in CG, MCDEC ltr E 035/TMH/jc over 1550 dated 3 November 1982.



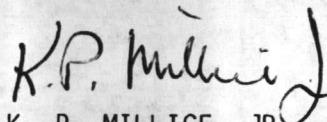
THOMAS P. ANGUS
By direction

UNITED STATES MARINE CORPS
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SECTION - II SUMMARY

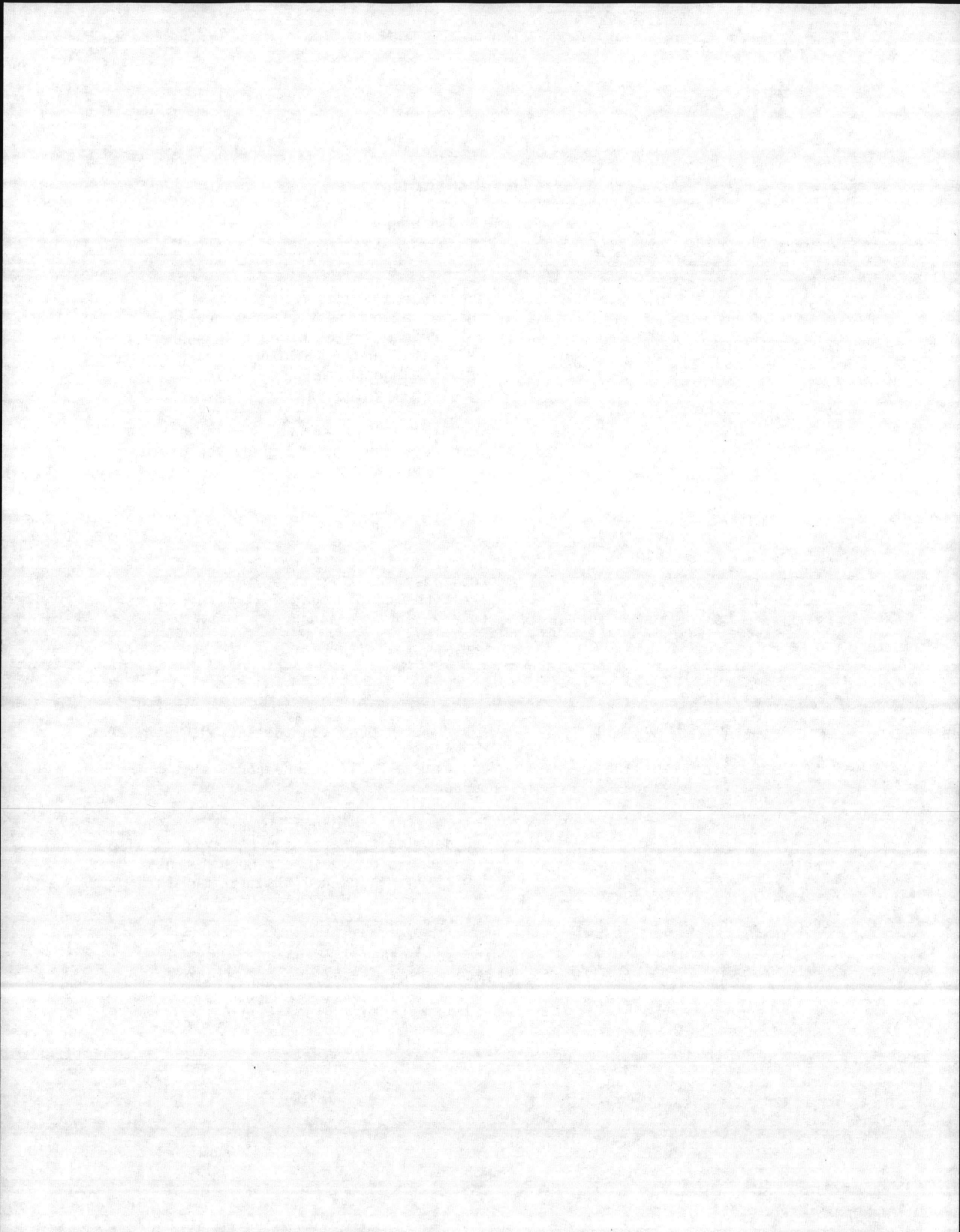
UTILITIES CHIEF COURSE

Course Length: 15 Weeks (74 Training Days)

A. <u>ACADEMIC SUBJECTS</u>	<u>HOURS</u>		<u>ANNEX</u>
	<u>P</u>	<u>M</u>	
1. Mathematics Review	28	28	A
2. Electricity Concepts	59	59	B
3. Construction Print Reading	5	5	C
4. Refrigeration/Air Conditioning Management	61	61	D
5. Plumbing Management	18	18	E
6. Water Supply Management	36	36	F
7. Hygiene Management	14	14	G
8. Electrical Management	133	133	H
9. Maintenance Management	66	66	I
10. Evaluations	<u>98</u>	<u>98</u>	
Subtotal	518	518	
B. <u>NONACADEMIC SUBJECTS</u>			
1. Administrative Time	49	49	
2. Physical Fitness	<u>45</u>	<u>45</u>	
Subtotal	94	94	
GRAND TOTAL	612	612	

SECTION III - BODY
UTILITIES CHIEF COURSE
ACADEMIC SUBJECTS
PEACETIME - 518 Hours

SUBJECT	SCOPE
E. Plumbing Management	<p>The student will receive classes on refrigeration theory, refrigeration maintenance, planning data in support of FMF units, and heat load calculations for use in planning the use of air conditioning equipment.</p> <p>The student will physically inspect refrigeration equipment and perform a tubing project.</p> <p>Instruction provides the student with the knowledge and skills necessary to effectively plan a plumbing project. It also deals with the proper use and care of tools pertinent to the plumbing field. The types of plumbing fixtures are also covered in this annex.</p> <p>The student will be provided with construction prints so he/she can plan a plumbing project.</p>
F. Water Supply Management	<p>Instruction provides the student with the knowledge and skills necessary to plan and organize a field water supply system in support of an FMF unit.</p> <p>Instruction is focused towards locating and developing water sources. It is also focused on the equipment requirements for purifying water, and also for maintaining the equipment in accordance with pertinent references.</p> <p>The student will perform a water reconnaissance and inspect selected water supply equipment. He/she will also set up and operate the deep well rig.</p>



SECTION III - BODY

UTILITIES CHIEF COURSE

ACADEMIC SUBJECTS

PEACETIME - 518 Hours

SUBJECT	SCOPE
G. Hygiene Management	<p>Instruction prepares the student to organize and manage a field hygiene station in the FMF.</p> <p>Instruction is focused on the organization of a field laundry and decontamination station with emphasis on the planning, organization and maintenance of hygiene equipment.</p> <p>The student will operate a laundry unit, inspect for preventative maintenance a laundry unit, decontamination apparatus and delousing unit.</p>
H. Electrical Management	<p>Instruction provides the student with the skills and knowledge to plan, organize, operate, and maintain exterior and interior electrical distribution systems.</p> <p>Instruction is provided on load calculations, conductor selection, electrical equipment selection, pole line construction, pole line rescue, mobile power generating sources, the National Electric Code, care and use of electrical tools and equipment, interior construction, and job sequencing.</p> <p>A brief synopsis on engine components and operation will also be given the student.</p> <p>The student will plan both an exterior and interior electrical system. He/she will install a field distribution system and perform a pole line rescue. The student will also inspect both interior and exterior electrical distribution systems. He/she will during the course of instruction use a load bank as a means of quality assurance on generator maintenance.</p>

SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F03

LESSON TITLE: INTRODUCTION TO MILITARY
WATER SUPPLY

<u>HOURS P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT EQUIPMENT</u>
2	L	SO, TP

LESSON PURPOSE: To familiarize the Utility Chief with the characteristics of water, the terminology used in water supply, and the hydrologic cycle.

NOTE: Learning objectives are neither specified nor measured in the lesson.

REFERENCE(S):

TM 5-700

SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F04

LESSON TITLE: WATER RECONNAISSANCE

<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
8	L,D,PA	T,OHP,M,CP

TERMINAL LEARNING OBJECTIVE(S):

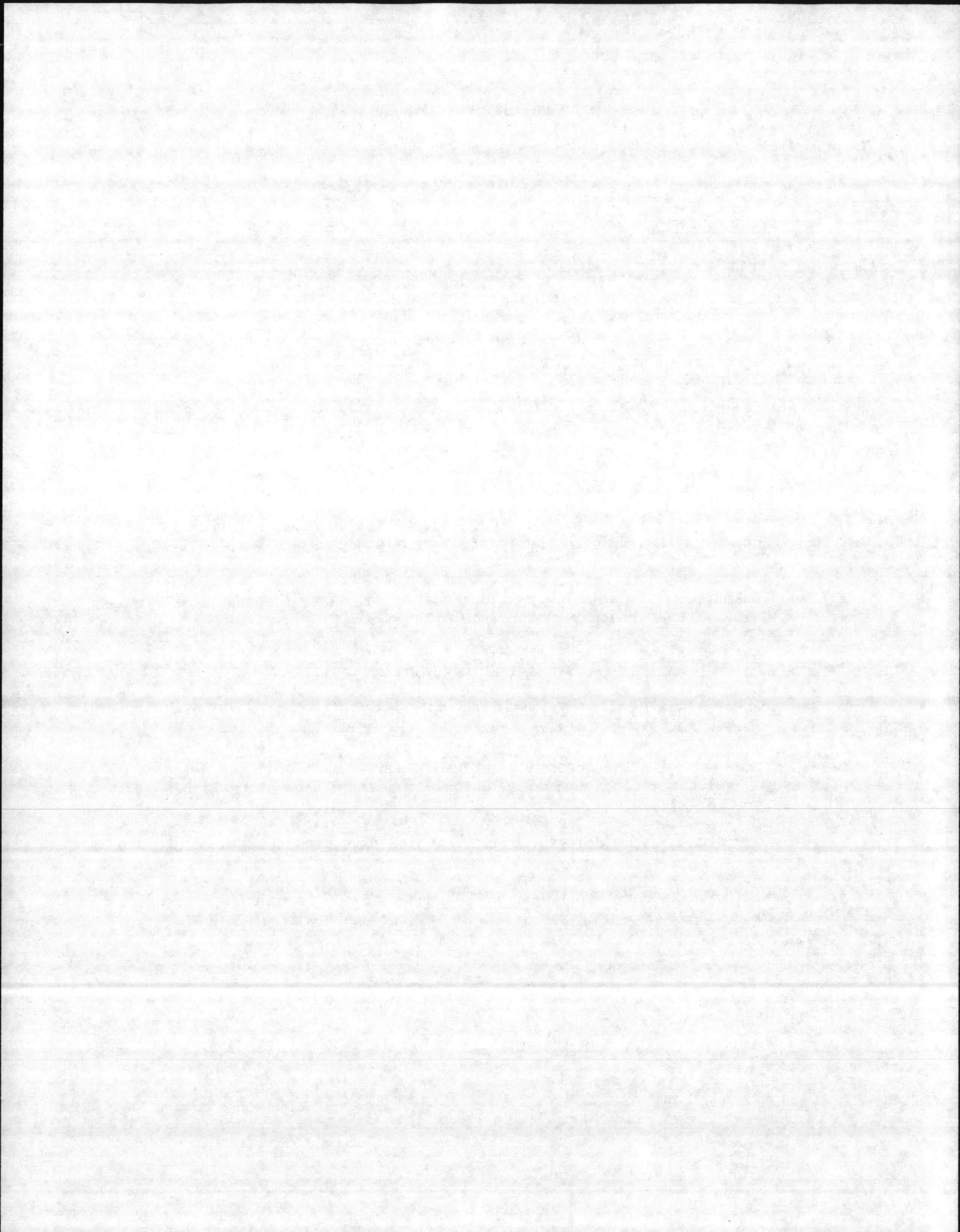
Provided with a map, color comparator, TM 5-700, DA Form 1711R, and DA Form 1712R, conduct a water reconnaissance in accordance with TM 5-700. (1.3.1)

ENABLING LEARNING OBJECTIVE(S):

1. Provided with a field report and map, select possible water sources for ground reconnaissance within the designated area in accordance with TM 5-700. (1.3.1a)
2. When taken to a stream using previous notes, calculate the quantity of water (GPH) flowing in the stream in accordance with TM 5-700. (1.3.1b)
3. Furnished with a color comparator, perform a PH test on a water sample drawn from a water source in accordance with TM 5-700. (1.3.1c)
4. Furnished with a color comparator, perform a chlorine residual test in accordance with TM 5-700. (1.3.1d)
5. When provided with the necessary materials and water samples from the sources you selected, conduct a coagulation jar test in accordance with TM 5-700. (1.3.1e)
6. Provided necessary materials, conduct a chlorine demand test in accordance with TM 5-700. (1.3.1f)
7. Provided with DA Forms 1711R and 1712R, and TM 5-700, complete forms using information from water source you selected in accordance with TM 5-700. (1.3.1g)

REFERENCE(S):

TM 5-700



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F06

LESSON TITLE: U-22446

<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
3	L,D,PA	AS,SO,WSE,TP

TERMINAL LEARNING OBJECTIVE(S):

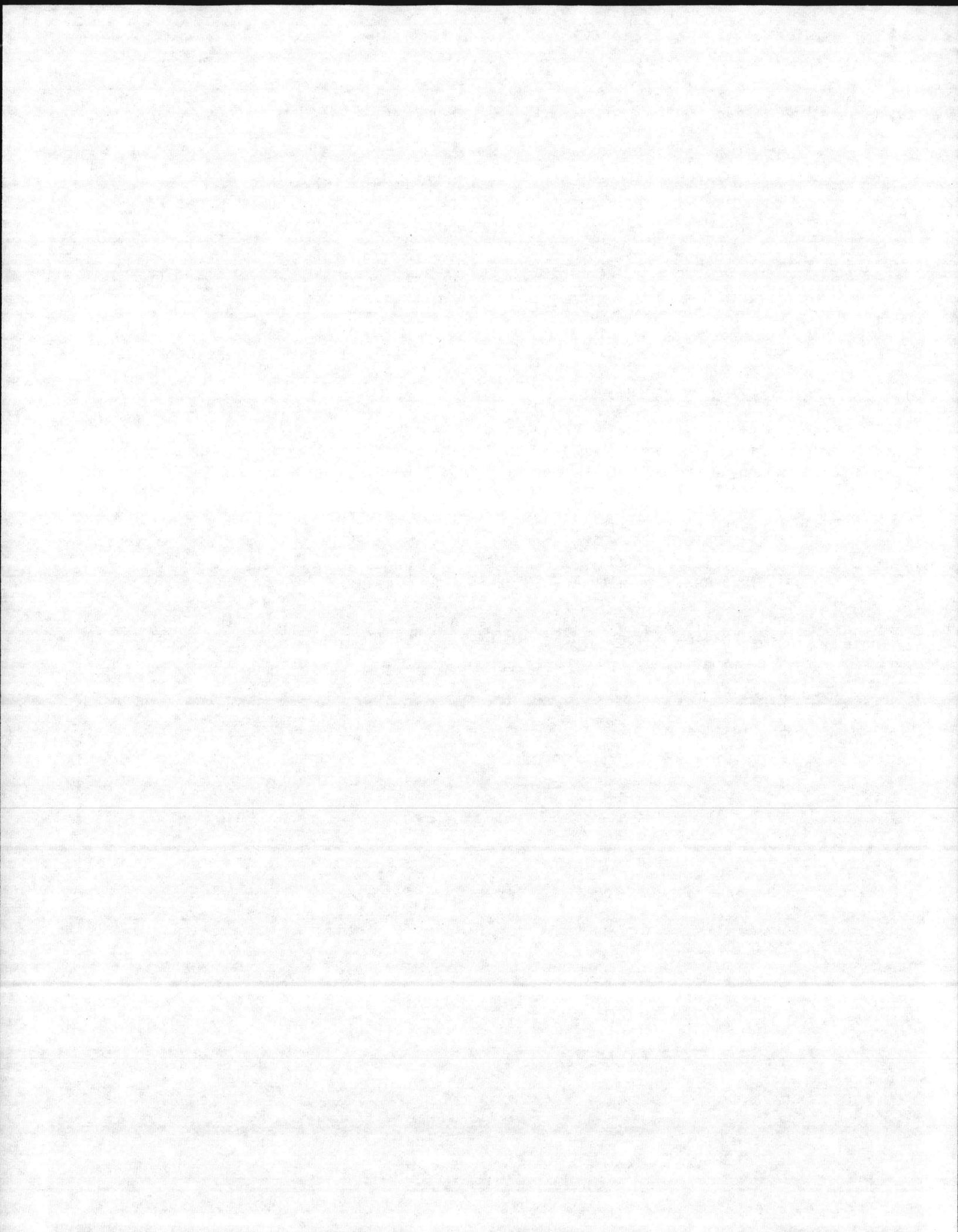
Provided with a previously completed NAVMC 10560 worksheet for quarterly preventative maintenance and PM'd U22446, inspect U22446 against QPM Sheet for thoroughness of PM in accordance with TM 01056C-14. (1.3.4)

ENABLING LEARNING OBJECTIVE(S):

1. Provided with a U22446 Water Purification Unit, identify the components of the unit in accordance with TM-01056C-14. (1.3.4a)
2. Provided with a list of maintenance indicators, select those that will affect the U22446 in accordance with TM-01056C. (1.3.4b)

REFERENCE(S):

TM-01056C-14



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F08

LESSON TITLE: 600 ERDLATOR

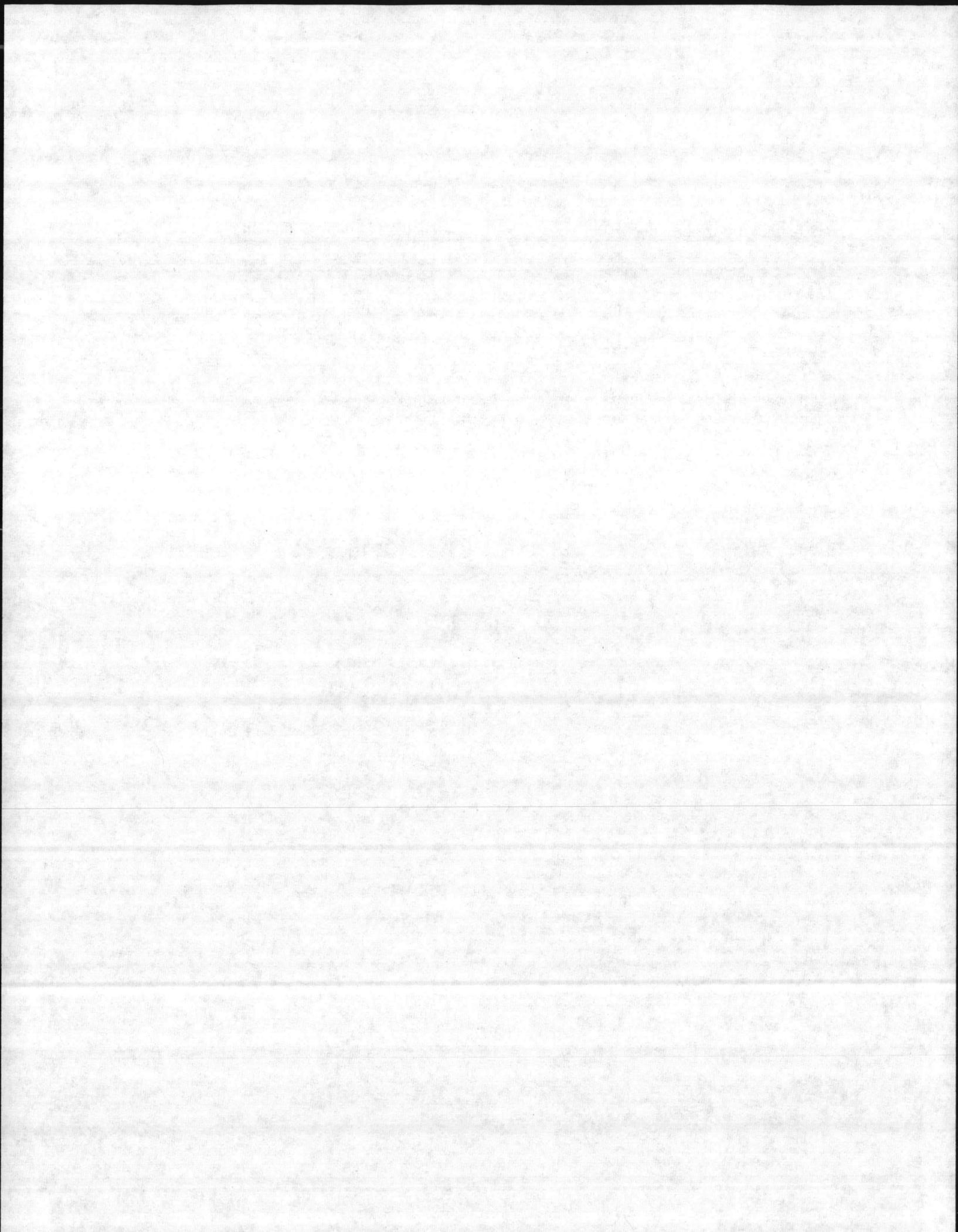
<u>HOURS</u> <u>P-M</u>	<u>METHOD</u>	<u>TRAINING SUPPORT EQUIPMENT</u>
3	L,D	AS,S0,WSE

LESSON PURPOSE: The purpose of this period of instruction is to familiarize the student with the characteristics of the 600 GPH Erdlator.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 03957A-15



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F09

LESSON TITLE: 1500 ERDLATOR

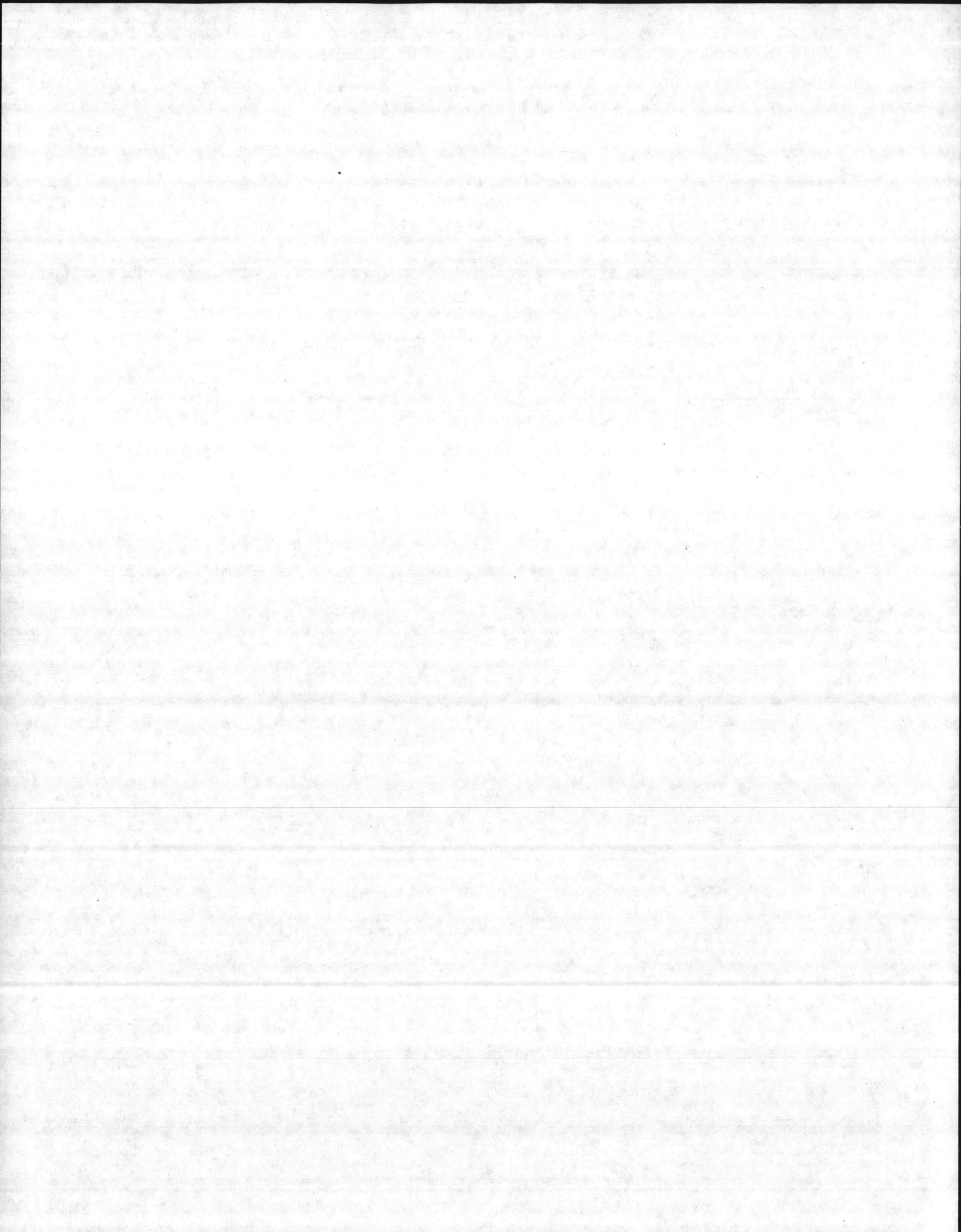
<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
2	L,D	S,SP,AS,HO

LESSON PURPOSE: To familiarize student with 1500 Erdlator capabilities and power requirements.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 04461A-15



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F10

LESSON TITLE: OPERATION OF DISTILLATION
UNIT

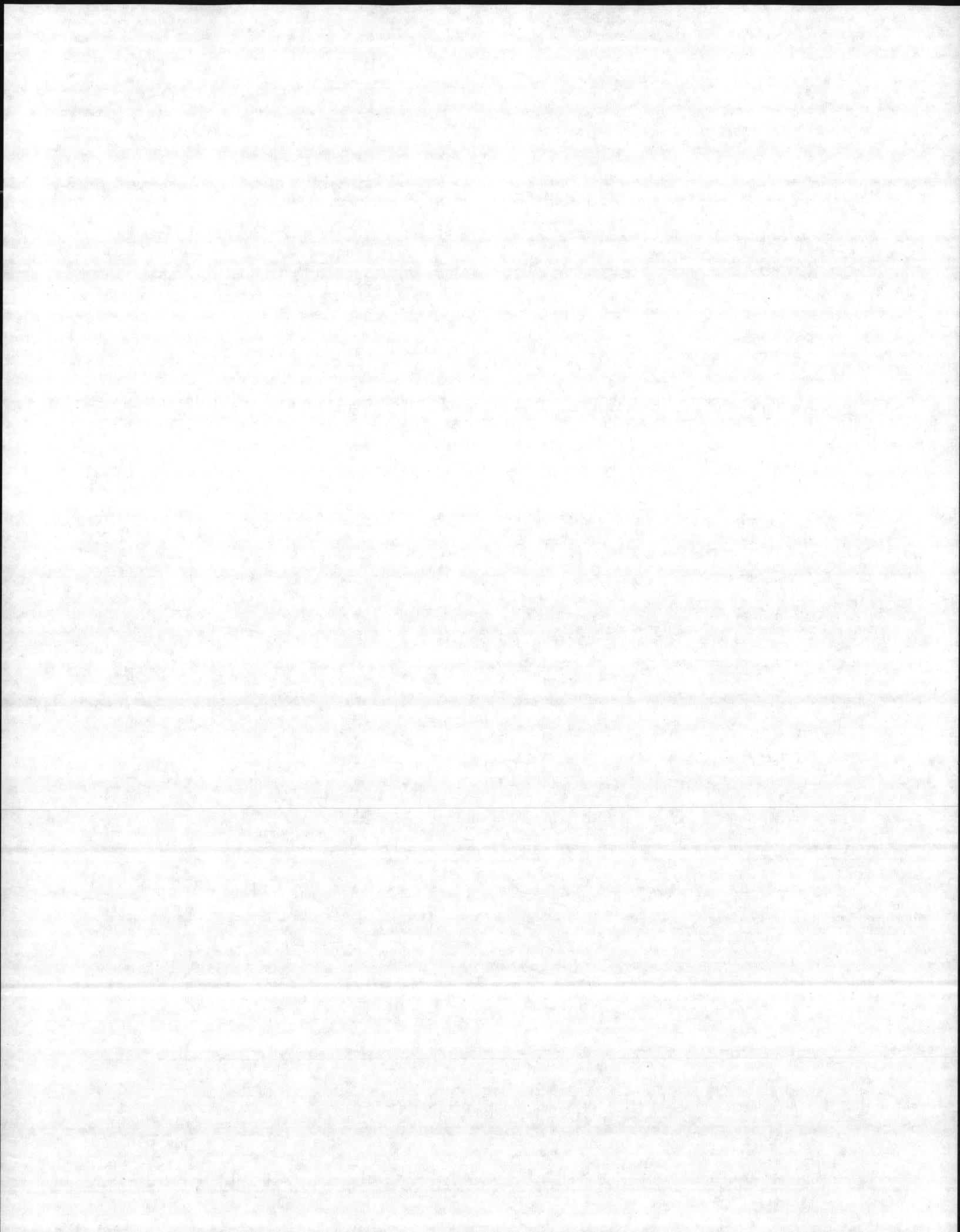
<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
3	L,D,A(G)	WSE,HO,AS

LESSON PURPOSE: To familiarize student with the operation and capabilities of the 200 gph Distillation Unit.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 01274D-14



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F11

LESSON TITLE: WATER SUPPLY RECORDS

<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
1	L	OHP,TP,AS,H0

TERMINAL LEARNING OBJECTIVE(S):

Provided with a water production log, water point inspection report, and TM 5-700, review water supply records, correcting errors in accordance with TM 5-700. (1.3.2)

ENABLING LEARNING OBJECTIVE(S):

Provided with ph and chlorine residual reading, compute chemical requirements in accordance with TM 5-700. (1.3.2a)

REFERENCE(S):

TM 5-700, pages 50 to 55

SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F13

LESSON TITLE: FAMILIARIZATION WITH MUD
HOG

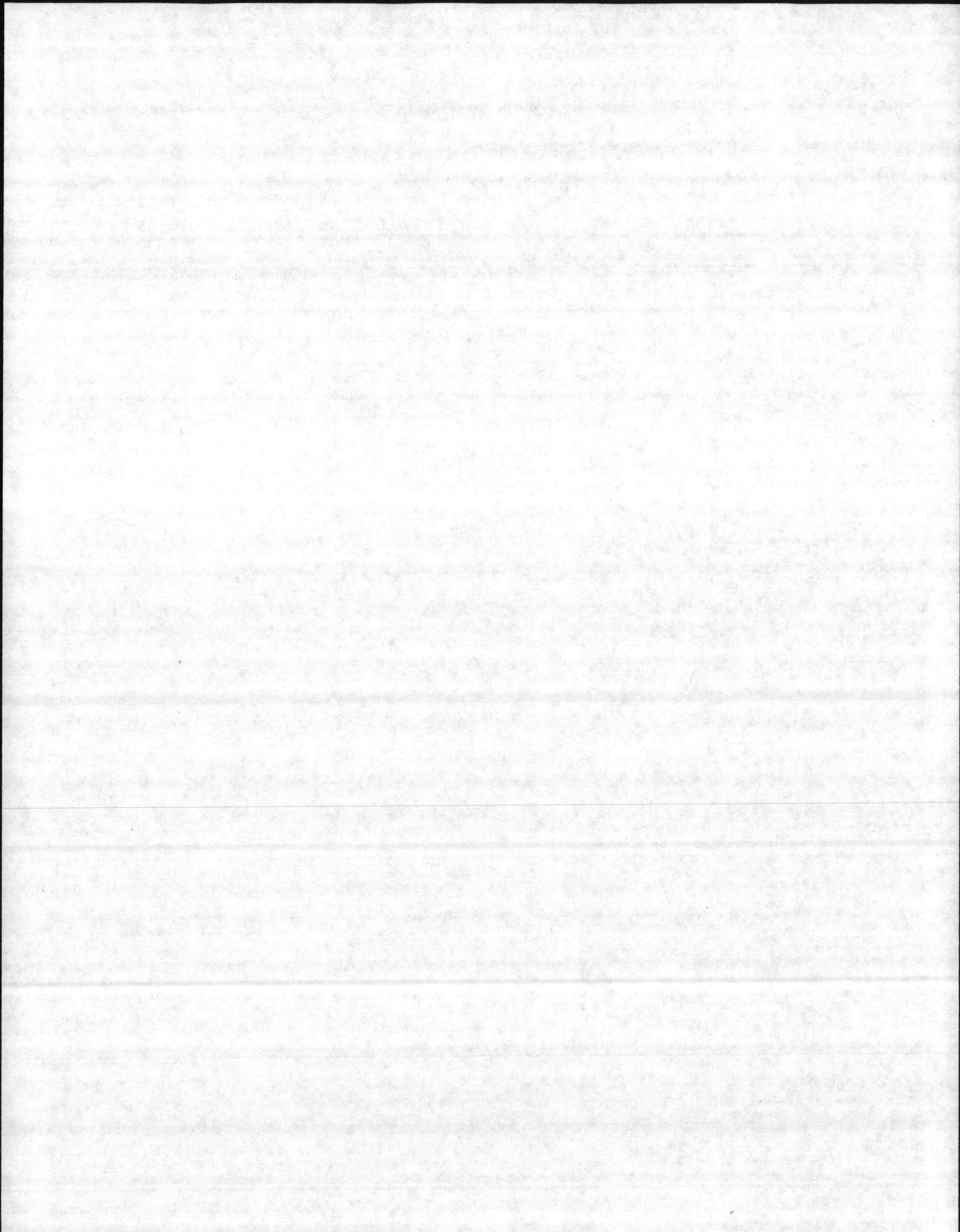
<u>HOURS</u> P-M	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
1	L	WSE,SO,TP,AS

LESSON PURPOSE: To familiarize students with the capabilities of the Mud Hog.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 5-4320-252-14



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F14

LESSON TITLE: WATER SOURCE DEVELOPMENT

HOURS P-M	METHOD(S)	TRNG SUPPORT EQUIPMENT
1	L	AS,SO,TP

LESSON PURPOSE: To familiarize students with the various aspects in developing water sources.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 5-700, Chapter 4

SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F15

LESSON TITLE: FAMILIARIZATION WITH WELL DRILLING

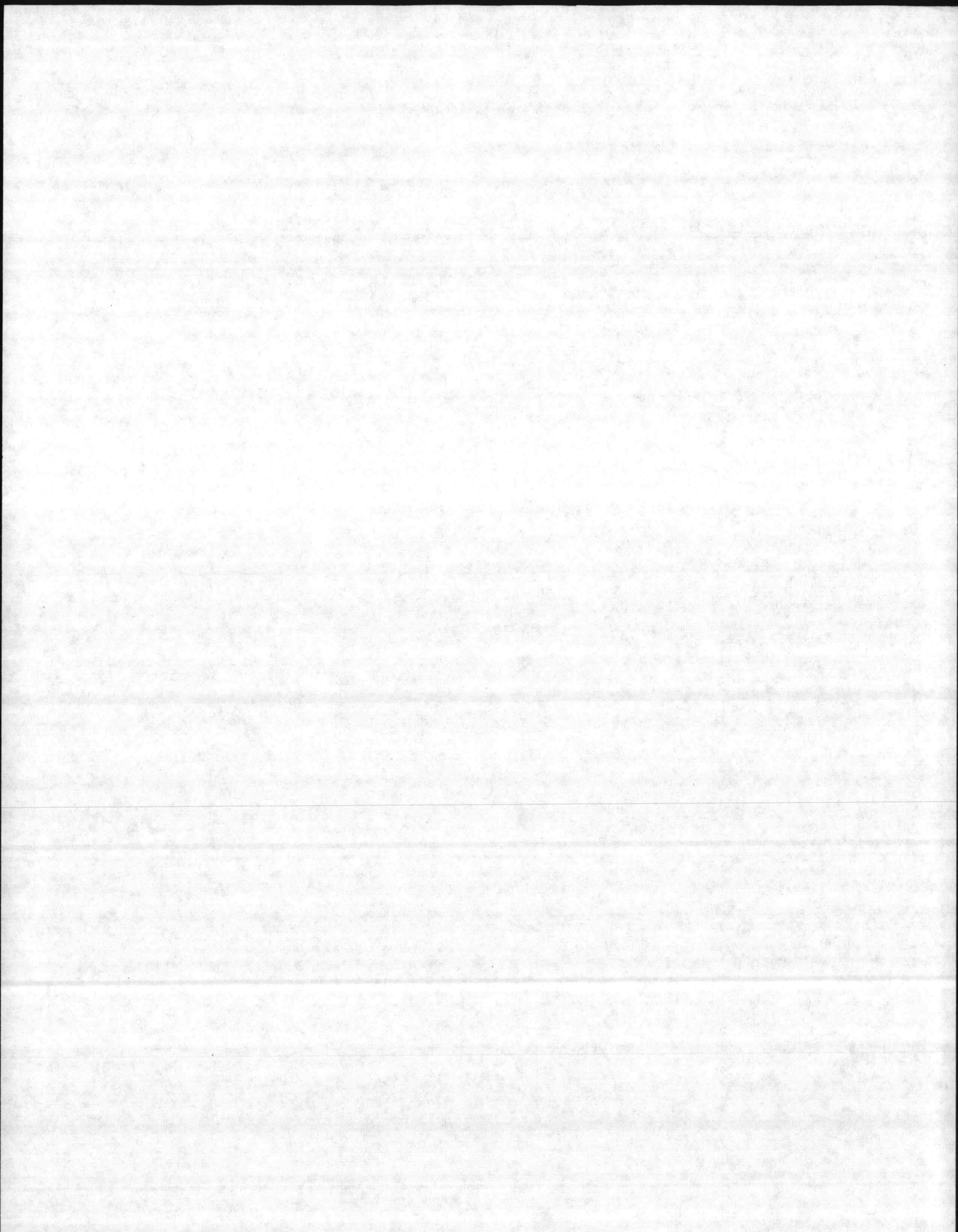
<u>HOURS</u> P-M	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
2	L	TP,OH,S,SP

LESSON PURPOSE: To familiarize students with the various forms of well drilling.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 5-700



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F16

LESSON TITLE: WELL DRILLING

<u>HOURS P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT EQUIPMENT</u>
4	L,D	AS,SO,OHP,TP,WSE

LESSON PURPOSE: The purpose of this period of instruction is to familiarize the student with the characteristics of the well drilling machine.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 00893B15
TM 009748-15
Baroid Drilling Mud Data Book

SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F17

LESSON TITLE: INTRODUCTION TO REVERSE
OSMOSIS MACHINE

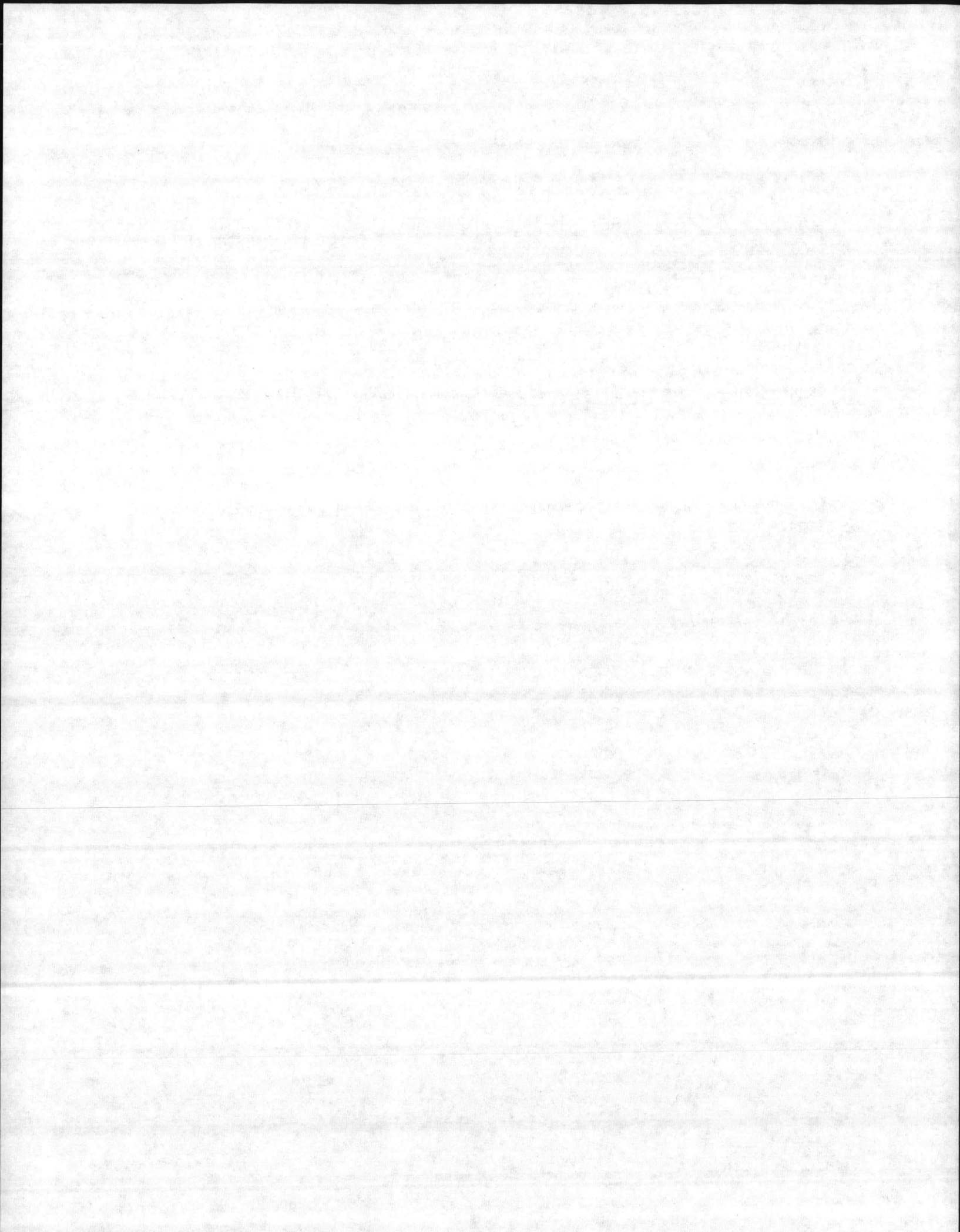
<u>HOURS</u> <u>P-M</u>	<u>METHOD(S)</u>	<u>TRNG SUPPORT</u> <u>EQUIPMENT</u>
2	L	WSE,HO,OH,TP

LESSON PURPOSE: To familiarize students with the Reverse Osmosis Machine.

NOTE: Learning objectives are neither specified nor measured during the lesson.

REFERENCE(S):

TM 5-4610-215-10



SECTION IV - ANNEXES

ANNEX F

WATER SUPPLY MANAGEMENT

LESSON DESIGNATOR: U-05F18

LESSON TITLE: DEVELOPMENT OF WATER POINT

HOURS P-M	METHOD(S)	TRNG SUPPORT EQUIPMENT
2	L	OHP,TP

TERMINAL LEARNING OBJECTIVE(S):

Given a tactical situation and taken to a raw water source, plan the development of a water point. The schedule of recommended improvements must match the school's model in accordance with TM 5-700. (1.3.2)

ENABLING LEARNING OBJECTIVE(S):

1. Provided with a list of conditions and no references, select those conditions that determine the extent of water point development in accordance with TM 5-700. (1.3.2b)
2. State in writing the methods of obtaining adequate drainage in the development of a water point in accordance with TM 5-700. (1.3.2c)
3. State in writing the various forms of water storage and storage tank supports or platforms in accordance with TM 5-700. (1.3.2d)
4. Provided with a list of equipment, select that equipment used in water distribution in accordance with TM 5-700. (1.3.2d)

REFERENCE(S):

TM 5700
TM 11275-15/3A

