

Training and Qualification of Liquid Pipeline Maintenance Personnel

API RECOMMENDED PRACTICE 1120
FIRST EDITION, APRIL 1992

American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005



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Transportation Department

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FOREWORD

This recommended practice, prepared under the auspices of the API Pipeline Transportation Committee, is intended to promote the proper training of persons who maintain liquid pipelines at assigned locations.

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Suggested revisions are invited and should be submitted to the director of the Transportation Department, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005.

CONTENTS

	Page
SECTION 1—GENERAL	
1.1 Introduction	1
1.2 Scope	1
1.3 Conformance to API's Environmental Mission and Guiding Principles	1
1.4 Applicability	1
1.5 Significance	1
1.6 Referenced Publications	1
SECTION 2—TRAINING AND QUALIFICATION	
2.1 General Requirements	1
2.2 Approach	1
2.3 Training Objective	2
2.4 Training Program	2
2.4.1 On-the-Job Training	2
2.4.2 Supplemental Training	2
2.5 Evaluation and Qualification	2
2.6 Continuing Training	2
2.7 Documentation	2
APPENDIX—TYPICAL LIQUID PIPELINE MAINTENANCE PERSON PERFORMANCE CHECKLIST	
	3

Training and Qualification of Liquid Pipeline Maintenance Personnel

SECTION 1—GENERAL

1.1 Introduction

This recommended practice describes what is required to properly train persons to perform maintenance on liquid pipelines. These persons, known as pipeliners, technicians, and maintenance specialists within the industry, will be collectively referred to as pipeliners in this recommended practice.

1.2 Scope

This recommended practice describes the skills required of pipeliners. It also describes the training techniques and the training program that should be used to teach these skills to pipeliners.

1.3 Conformance to API's Environmental Mission and Guiding Principles

This recommended practice has been reviewed to determine if it conforms to API's Environmental Mission and Guiding Principles.¹ It has been determined that because this recommended practice directly addresses safety and environmental issues, it does conform to API's Environmental Mission and Guiding Principles. The following guiding principles have been determined to be especially relevant to this recommended practice:

- To operate our plants and facilities and handle our raw materials and products in a manner that protects the environment, and the safety and health of our employees and the public.
- To make safety, health and environmental considerations a priority in our planning, and our development of new products and processes.

- To advise promptly appropriate officials, employees, customers and the public of information on significant industry-related safety, health and environmental hazards, and to recommend protective measures.
- To commit to reduce overall emissions and waste generation.
- To participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.

1.4 Applicability

This recommended practice applies to all liquid pipelines covered by 49 *Code of Federal Regulations* Part 195 and any companion state regulations where such regulations exist.

1.5 Significance

Competent, thoroughly trained pipeliners help to ensure that pipeline stations and facilities operate safely and efficiently and that responses to abnormal or emergency conditions that may occur are timely.

1.6 Referenced Publications

The most recent editions of the following standards, codes, and specifications are cited in this recommended practice.

DOT²

Research and Special Programs Administration (49 *Code of Federal Regulations* Part 195)

SECTION 2—TRAINING AND QUALIFICATION

2.1 General Requirements

Companies that operate liquid pipelines should prepare written training plans that describe how their pipeliners are to be trained and qualified. The plans should be followed, and they should be reviewed for effectiveness every calendar year. (The length of time between reviews should not exceed 15 months.) The plans should also be reviewed whenever new equipment or new procedures are put into service. Revisions to each plan should be made as required. Each company should assign at least one employee

to be responsible for ensuring that the requirements of its plan are met.

2.2 Approach

The basic approach to pipeliner training is through structured on-the-job training (OJT). This systematic approach relies on the following considerations and techniques:

- a. The pipeliner is trained to meet performance-oriented objectives.

¹Charter and Bylaws of the American Petroleum Institute, American Petroleum Institute, Washington, D.C., April 3, 1991.

²U.S. Department of Transportation. The *Code of Federal Regulations* is available from the U.S. Government Printing Office, Washington, D.C. 20402.

b. The training takes place in the actual work environment with the supervisor or an experienced pipeliner serving as the instructor.

c. On-the-job training may be supplemented by other training methods, such as classroom instruction, computer-based training, and video-based training.

d. The pipeliner must be qualified for each task and objective relating to his or her assignment.

2.3 Training Objective

The training objective is to conduct a continuing training program that teaches pipeliners how to carry out the maintenance procedures that relate to their assignments. Some of the maintenance procedures that pipeliners may be required to carry out or know are as follows:

- a. Performing normal maintenance.
- b. Responding to abnormal situations.
- c. Responding to emergency conditions.
- d. Knowing the general characteristics and hazards of the liquids being transported.
- e. Recognizing conditions that are likely to cause emergencies, predicting the consequences of facility malfunctions and failures and of hazardous liquid spills, and knowing the action that must be taken when malfunctions or spills occur.
- f. Knowing how to properly use firefighting procedures and available equipment.
- g. Knowing how to safely repair equipment and facilities.

2.4 Training Program

2.4.1 ON-THE-JOB-TRAINING

Guidance and practice in a structured setting make on-the-job training sessions effective. Specifically, on-the-job training consists of the following steps:

- a. Statement of the training objective.
- b. Demonstration.

c. Directed performance.

d. Practice.

e. Assessment.

2.4.2 SUPPLEMENTAL TRAINING

Supplemental training, such as classroom instruction, computer-based training, and video-based training, provides support for on-the-job training and supplies additional knowledge, as needed.

2.5 Evaluation and Qualification

Once a trainee has become proficient through practice, he or she must be evaluated and qualified. A trainee qualifies as a pipeliner when he or she can responsibly perform the tasks required for the job. Through testing, the supervisor or instructor will determine if a trainee's knowledge and skills are sufficient. The testing may be written, hands-on, computer-based, or oral.

A performance checklist should be maintained for each trainee showing which tasks have been mastered by him or her, when he or she was qualified, and by whom he or she was qualified. A typical performance checklist is included in the Appendix.

2.6 Continuing Training

When newly installed equipment or new procedures impact a pipeliner's responsibilities, the pipeliner should receive additional training to update his or her qualifications. A pipeliner should also receive training that refreshes the knowledge and skills developed during initial training. Refresher training should occur at least once every three years.

2.7 Documentation

The training of each pipeliner will be documented.

APPENDIX—TYPICAL LIQUID PIPELINE MAINTENANCE PERSON PERFORMANCE CHECKLIST

TYPICAL LIQUID PIPELINE MAINTENANCE PERSON PERFORMANCE CHECKLIST

Employee Name _____

Employee No. _____

Job Title _____

Location _____

	Date	Instructor's Initials
A. Has demonstrated proficient knowledge of the following:		
1. Inspection and repair manual		
2. Safety procedures manual		
3. Emergency procedures manual		
4. Site security		
5. Critical and environmentally sensitive areas		
6. Pipeline layout		
B. Has demonstrated that the following are true:		
1. Recognizes emergency conditions and hazards		
2. Understands the emergency actions that must be taken in the event of a release in order to minimize the chance of fire, explosion, toxicity, or environmental damage		
3. Performs housekeeping and practices safe use of tools, equipment, and facilities		
4. Understands the hazard communication plan for his areas of responsibility		
C. Has demonstrated the ability to do the following:		
1. Launch a scraper or sphere		
2. Receive a scraper or sphere		
3. Perform a Department of Transportation valve inspection		
4. Perform a river crossing inspection for piping below the surface of the water or buried		
5. Perform a river crossing inspection for piping above the water surface or aboveground		
6. Fill out the paperwork necessary for reporting repairs, fulfilling safety reporting requirements, and reporting changes to the piping system		
7. Locate and mark an underground pipeline		
8. Perform maintenance work on piping (This includes being able to isolate, evacuate, purge, electrically bond, vent, cut, assist a welder, perform an inspection, perform a pressure test, maintain a fire watch, and perform a start-up.)		
9. Read and understand piping drawings enough to be able to locate a pipeline		
10. Perform tank inspections		
11. Isolate and pick up liquid spills on land		
12. Isolate and pick up liquid spills on water		
13. Patrol a right of way looking for excess vegetation and other potential obstructions and evidence of a release or other potential problems		
14. Use hoisting equipment properly and inspect		
15. Perform other inspections:		
a.		
b.		
c.		
d.		
16. Use personal-protective equipment (for respiratory, eye, head, hands, feet, and skin protection)		
17. Use the available fire-fighting equipment		
18. Operate the company's communication systems and use its procedures		
19. Use and care for hydrogen sulfide, oxygen, explosionmeters, and other pertinent atmospheric measurement devices		
This confirms that _____ (employee name) has been trained as a liquid pipeline maintenance person and is qualified to perform maintenance functions for _____ (company name) at _____ (location). Authorized Signature _____ Date _____ _____ (position)		

Order No. 831-11200

1-1500-4/92-5C (9C)

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