

Training and Qualification of Liquid Pipeline Operators

API RECOMMENDED PRACTICE 1119
FIRST EDITION, NOVEMBER 1991

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 operate 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.

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Training and Qualification of Liquid Pipeline Operators

SECTION 1—GENERAL

1.1 Introduction

This recommended practice describes what is required to properly train persons to operate liquid pipelines at assigned locations. These persons, known as pipeline operators, gaugers, and station attendants within the industry, will be collectively referred to as pipeline operators in this recommended practice.

1.2 Scope

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

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 standards 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 pipeline operators 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 pipeline operators 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.

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

2.2 Approach

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

- a. The worker is trained to meet performance-oriented objectives.
- b. The training takes place in the actual work environment with the supervisor or an experienced pipeline operator serving as the instructor.

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

- c. On-the-job training may be supplemented by other training methods such as classroom instruction, computer-based training, video-based training, and simulation.
- d. The pipeline operator 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 pipeline operators how to carry out the operating procedures that relate to their assignments. Some of the operating procedures that pipeline operators may be required to carry out or know are as follows:

- a. Performing normal operations.
- b. Responding to abnormal operations.
- c. Responding to emergency conditions.
- d. Knowing the general characteristics and hazards of the hazardous liquids being transported.
- e. Recognizing monitored operating 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.

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 pipeline operator 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 pipeline operator's responsibilities, the operator should receive additional training to update his or her qualifications. A pipeline operator 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 pipeline operator will be documented.

**APPENDIX—TYPICAL LIQUID PIPELINE
OPERATOR PERFORMANCE CHECKLIST**

TYPICAL LIQUID PIPELINE OPERATOR PERFORMANCE CHECKLIST

Employee Name _____

Employee No. _____

Location _____

	Date	Instructor's Initials
A. Demonstrate proficient knowledge of the following:		
1. General duties		
2. Operating functions and responsibilities for locally controlled stations		
3. Operating functions and responsibilities for remotely controlled stations		
4. Maintenance functions and responsibilities		
5. Reporting functions and responsibilities		
6. Requirements for abnormal conditions		
7. Requirements for emergency conditions		
8. Effect of line break on adjacent stations		
9. Pump station layout		
10. Protective device settings		
11. Measurement equipment		
12. Maximum allowable pressure		
13. Characteristics of products being transported		
14. Pertinent reference manuals		
15. Valves and piping indicated on valve charts		
16. Critical and environmentally sensitive areas		
B. Demonstrate the ability to do the following:		
1. Perform normal pipeline operator duties		
2. Respond to abnormal and emergency conditions		
3. Respond to computer outages (assume local control)		
4. Determine if protective devices are functioning properly		
5. Operate station tankage and valve system		
6. Operate station control equipment		
7. Start and stop pumps		
8. Perform systems integrity check		
9. Clear trouble using the proper procedure		
10. Operate station auxiliary equipment		
11. Check safety equipment		
12. Perform the proper reporting functions in normal and emergency conditions		
13. Perform normal housekeeping and routine maintenance		
14. Operate communication equipment		
15. Use personal-protective equipment		
C. Demonstrate the knowledge necessary for handling emergencies by being able to do the following:		
1. Define alarm conditions		
2. Recognize prior conditions		
3. Predict consequences		
4. Take corrective action		
5. Shutdown a station or facility		
6. Isolate a station or facility		
7. Notify company personnel		
8. Notify local authorities		
9. Operate emergency shutdown systems		
This confirms that _____ (employee name) has been trained as a liquid pipeline operator and is qualified to operate _____ (company name) at _____ (location). Authorized Signature _____ Date _____ _____ (position)		

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