**3-DAY PACP™|LACP™|MACP™ COURSE SYLLABUS**

Pipeline Assessment Certification Program (PACP) Version 8.0
Lateral Assessment Certification Program (LACP) Version 8.0
Manhole Assessment Certification Program (MACP) Version 8.0

**REQUIRED TEXTS**

PACP Manual – provided by NASSCO. A digital (PDF) version can be found on your NASSCO Training Source Account under My Courses.

**SUGGESTED REFERENCES**

Videos, Webinars, Specification Guidelines, other educational opportunities and technical manuals available on NASSCO.org.

**COURSE GOALS**

PACP The purpose of PACP training and certification is to ensure that all pipeline assessment data is collected and coded in a consistent and reliable manner using four families of codes: Structural, Operation and Maintenance, Construction and Miscellaneous.

PACP provides the methodology to standardize the data collected during pipeline inspections. The first objective of PACP is to fully document structural deficiencies and construction features since those defects and features will have the most significant long-term influence on the pipe integrity and pipe management.

LACP LACP is a continuation of the Pipeline Assessment Certification Program. The premise of LACP is that lateral pipes are no different than mainline pipes except for their size and configuration. The PACP observation and defect codes will apply to lateral pipes in all respects except for the tap codes. Since a tap is considered an access point in LACP, no tap codes apply except for the Tap Break-In (TB) Code as the break-in tap was not part of the original construction of the lateral.

The similarities between mainline and laterals are that they are both pipes and therefore condition assessment is performed the same way.

MACP MACP is a continuation of the Pipeline Assessment Certification Program. The premise of MACP is that many of the codes that work for pipe are also applicable to manhole components. The PACP observation and defect codes will apply to the various manhole components with the modifications detailed in this section.

The goal of MACP is to provide the student a thorough understanding of the procedures required to perform an appropriate inspection of manholes and other access points.

**COURSE ACTIVITIES**

Presentation of Training Materials
Course Review
Multiple Choice/Open-Book Exam

**COURSE SCHEDULE**

**Day 1 (8 hours)**

1. Welcome and Overview, *estimated time 45 minutes*
    A. Course Content
    B. Introduction to NASSCO
    C. NASSCO Resources
    D. Overview of PACP Manual

2. Introduction and Need for Categorization (Section 1), *estimated time 1.5 hours*
    A. PACP Overview
    B. Role of the Inspector
    C. Origin of Condition Codes
    D. How We Use PACP Data
    E. Categories of Pipe Use
    F. Pipeline Assessment Technologies
    G. Reasons for PACP Inspection
    H. General Approach to PACP Inspection Using CCTV
    I. Background to Technical Issues

3. PACP Inspection Form – Header Section (Section 2), *estimated time 1.25 hours*
    A. Inspection Form Instructions
    B. PACP Inspection Deliverables
    C. Header Section Instructions and Fields

4. PACP Details Section (Section 3), *estimated time 1.25 hours*
    A. PACP Inspection Form – Details Section
    B. Initial Coding
    C. Final Coding
    D. Column Entries
    E. Sample PACP Inspection Form

5. Structural Coding (Section 4), *estimated time 3.25 hours*
    A. Crack (C)
    B. Fracture (F)
    C. Broken (B)
    D. Hole (H)
    E. Deformed (D)
    F. Collapse (X)
    G. Joint (J)
    H. Surface Damage (S)
    I. Lining Features (LF)
    J. Weld Failure (WF)
    K. Point Repair (RP)
    L. Bolts – Metal Pipe (BT)
    M. Brickwork

**Day 2 (8 hours)**

1. Review of Day 1, *estimated time 15 minutes*
2. Operation and Maintenance Coding (Section 5), *estimated time 2 hours*
    A. Deposits (D)
    B. Roots (R)
    C. Infiltration (I)
    D. Obstacles/Obstructions (OB)
    E. Vermin (V)
    F. Grout Test and Seal (G)
    G. Leak (LK) – Pressure Pipe Only

3. Construction Coding (Section 6), *estimated time 1 hour*
    A. Tap (T)
    B. Intruding Sealing Material (IS)
    C. Line (L)
    D. Access Points (A)
    E. Valve (VA) – Pressure Pipe Only

4. Miscellaneous Coding (Section 7), *estimated time 1 hour*

5. Appendices A–F, *estimated time 1 hour*
    A. Appendix A – Code List
    B. Appendix B – General Guidelines and Color-Coded Charts
    C. Appendix C – Condition Grading System
    D. Appendix D – PACP-Based Risk Management (optional)
    E. Appendix E – Pipe Shapes, Materials, Linings and Coatings (optional)
    F. Appendix F – Condition Assessment of Pressure Pipes (optional)

6. Course Review, *estimated time 1.75 hours*
    A. Course Review
    B. Practice Pictures and Videos
    C. PACP Jeopardy

7. Multiple Choice Exam, *estimated time 1 hour*

**Day 3 (8 hours)**

1. Lateral Assessment Certification Program (LACP – Section 8)
    A. Part 1 – LACP Introduction, *estimated time 30 minutes*
        i. Overview
        ii. Lateral Configurations
        iii. Examples of Lateral Inspections
        iv. General Approach to LACP Inspection
        v. General Rules for Coding Observations/Defects

    B. Part 2 – LACP Inspection Form – Header Section, *estimated time 1 hour*
        i. Instructions
        ii. Header Fields

**Day 3 – continued**

C. Part 3 – LACP Inspection Form – Details Section, *estimated time 1 hour*
   i. Instructions
   ii. Continuous Defect Coding
   iii. Structural
   iv. Operation and Maintenance
   v. Construction
   vi. Miscellaneous
   vii. Access Points (A)
   viii. Fittings (F)
   ix. LACP Inspection Form

D. LACP Exam, *estimated time 30 minutes*

2. Manhole Assessment Certification Program (MACP – Section 9)
   A. Part 1 – MACP Introduction, *estimated time 1 hour*
      i. Overview
      ii. General Approach to MACP Inspection
      iii. Manhole Components

   B. Part 2 – MACP Inspection Form – Header and Manhole Component Observation Section, *estimated time 2 hours*
      i. Header Section Instructions and Fields
      ii. Manhole Component Observation Section Instructions and Fields

   C. Part 3 – MACP Inspection Form – Manhole Component Details Section, *estimated time 1.25 hours*
      i. Instructions
      ii. Coding Continuous Defects in Manholes
      iii. Chimney Condition Inspection
      iv. Cone Condition Inspection
      v. Wall Condition Inspection
      vi. Bench Condition Inspection
      vii. Channel Condition Inspection
      viii. Sample MACP Inspection Form

   D. MACP Exam, *estimated time 45 minutes*

**TESTING**

Each student will be expected to get at least 85% of the questions asked correct to become certified. If a passing grade is not achieved, one retake will be given.

**ESTIMATED COURSE TIME**

- PACP: 16 hours
- LACP: 3 hours
- MACP: 5 hours

Total Course Time: 24 hours