Level I & II Visual Testing

Training Course - VT-100

COURSE: A 24 hour course intended to address the body of knowledge outlined in SNT-TC-1A.

REFERENCE & TRAINING MATERIAL:

1. EPRI NDE Center - Visual Examination series 1 - 4

1.0 Introduction

A. Class rules and policies
   1. Grading System
      a. Mid-Course Examination and Quizzes will not count towards final grade.
      b. Final Examinations - A 30 question Level I/II comprehension examination will be given at the end of the class. The requirements to pass the course is a 70% score or greater on each examination.
   2. Purpose of Visual Testing
   3. Definition of Visual Testing
   4. Overview of Applications
   5. Quiz

2.0 Fundamentals

A. Definition of Visual Testing
B. When is Visual Testing Performed
C. Why is Visual Testing Performed
D. How is Visual Testing Performed
E. Who Performs Visual Testing
F. Light Characteristics
G. Types of Light
H. Light Sources
I. Light Measurement
J. Lighting Requirements
K. Vision & the Eyes
L. Vision Disorders
M. Visual Acuity
N. Visual Perception
O. Object Attributes, Environmental, and Physiological Factors
P. Review
Q. Quiz
3.0 Testing Equipment - Direct Visual Testing
A. Boroscopes
B. Fiberscopes
C. Videoscopes
D. Gages and Measuring Devices
E. Magnifiers and Optices
F. Machine Vision
G. Quiz

4.0 Metrology
A. Basic Metric Units
   1. Decimal System
   2. Scientific Notation
   3. Conversions
   4. Exercises

5.0 Castings
A. Permanent Mold Castings
B. Non-Permanent Mold Castings
C. Investment Castings
D. Casting Defects

6.0 Other Testing Methods
A. NDT Overview
   1. Magnetic Particle
   2. Liquid Penetrant
   3. Radiography
   4. Ultrasonic
B. Destructive Testing
   1. Chemical Tests
   2. Metallographic Tests
   3. Mechanical Tests
   4. Hardness Testing
   5. Tensile Testing
   6. Bend Testing
   7. Impact Testing
C. Sampling
D. Statistical Process Control
E. Calibration
F. Bolting and Tensioning
G. Pressure Vessels
H. Pumps and Valves

7.0 Weld Inspection
A. Welding Processes
B. Weld Joints
C. Weld Positions
D. Weld Anatomy and Discontinuities
E. Welding Symbols
F. Weld Defects
G. Weld Evaluation of Discontinuities
H. Quiz
I. Training Workbook
I. Weld Evaluation Exercises

8.0 Quality Assurance and Quality Control
A. Quality Systems
B. Quality System Elements
C. Quality Engineering
D. Quality Control

9.0 Review and Final Examination
A. Final Comprehension Examination - 30 questions - closed book.
B. Instructor Evaluation