BODY OF KNOWLEDGE FOR API SIRE SOURCE INSPECTOR ROTATING EQUIPMENT CERTIFICATION EXAM

The API Source Inspector programs qualify individuals who perform the important task of quality surveillance of materials, equipment, and fabrications at the supplier/vendor level in the oil, petrochemical and gas industries. API SIRE - Source Inspector Rotating Equipment will cover primarily rotating equipment, including but not limited to pumps, gears, compressors, turbines, and associated appurtenances.

The exam consists of 110 scored questions and 10 pretest questions; and runs for 3 hours and 15 minutes; no references are available during the exam, and nothing may be brought into the test center.

The exam focuses on the content of API SIRE Study Guide and other referenced publications.

REFERENCE PUBLICATIONS:

A. API Publications

- **Study Guide for Source Inspection and Quality Surveillance of Rotating Equipment**
- **API Standard 610**, *Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries*
- **API Standard 614**, *Lubrication, Shaft-sealing and Oil-control Systems and Auxiliaries*
- **API Standard 617**, *Axial and Centrifugal Compressors and Expander-compressors*
- **API Standard 618**, *Reciprocating Compressors for Petroleum, Chemical, and Gas Industry Services*
- **API Standard 677**, *General-purpose, Extruder, and Epicyclic Gear Units for Petroleum, Chemical and Gas Industry Services*

B. American National Standards Institute (ANSI)/Hydraulic Institute (HI)

- **HI 14.6,** Rotodynamic Pumps for Hydraulic Performance Acceptance Tests

C. American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code

- **Section II**, Materials
- **Section V,** Nondestructive Examination
- **Section VIII,** Rules for Construction of Pressure Vessels
- **Section IX,** Welding and Brazing Qualifications

D. American Society of Nondestructive Testing (ASNT)

- **SNT-TC-1A** *Personnel Qualification and Certification in Nondestructive Testing*

E. American Standard for Testing Materials (ASTM)

- **ASTM A703** *Standard Specifications for Steel Castings, General Requirements, for Pressure-Containing Parts*

F. Manufacturer Standardization Society (MSS)

- **MSS-SP-55** *Quality Standard for Steel Castings for Valves, Flanges, Fittings and Other Piping Components*

G. Surface Preparation Guide (SSPC)

- SSPC-SP1 *Solvent Cleaning*
- SSPC-SP3 *Power Tool Cleaning*
- SSPC-SP5 or NACE 1 *White Metal Blast Cleaning*
- SSPC-SP6 or NACE 3 *Commercial Blast Cleaning*
- SSPC-SP7 or NACE 4 *Brush-Off Blast Cleaning*
- SSPC-SP10 or NACE 2 *Near-White Blast Cleaning*
- SSPC-SP11 *Power Tool Cleaning to Bare Metal*

Candidates are expected to demonstrate knowledge in the following categories:

1. **Terms and Definitions**
2. **Source Inspection Management Program**
3. **Equipment Risk Assessment**
    - Development of a Source Inspection Project Plan
    - Development of Inspection and Test Plans
    - Report Review
4. **Source Inspection Performance**
    - Inspector Conduct and Safety
    - Review of Project Documents
    - Report Writing Nonconformance/Deviations
5. **Examination Methods, Tools and Equipment**
    - Dimensional Inspections
    - Visual Inspections
    - Typical Electrical Testing Techniques
    - Functional Testing
    - Surface Preparation/Coatings Inspections
6. **Manufacturing and Fabrication Processes**
    - Welding Processes and Welding Defects
    - Casting
    - Forging
    - Machining
    - Rotating Equipment Assembly
    - Metallurgy Issues Associated with Manufacturing and Fabrication Processes
    - Assembly Inspection of the Equipment Train on the Baseplate
7. **Centrifugal Pumps**
    Design and Construction Standards
    - Materials of Construction/Pump Components
8. **Drivers**
    - Electrical Motors
9. **Gears**
    - Gear Unit Materials
    - Internal Component Inspections
    - Testing of Gears
10. **Steam Turbines**
    - Turbine Casing
11. **Lube Oil Systems**
    - Inspection and Testing of Lube Oil
12. **Reciprocating Compressors**
    - Internal Component Inspections

- Final Inspection and Preparation for Shipment

13. Rotary- (Screw) Type Compressors

- Testing of Rotary Screw Compressors and Auxiliaries
- Final Inspection and Preparation for Shipment
- Axial/Centrifugal Compressors

14. Testing of Axial/Centrifugal Compressors