NDT Report Template: Structural Integrity Assessment

1. Project Information

- **Project Name:** [Enter Project Name]
- **Asset Identification:** [Serial Number/Tag Number/Unique Identifier]
- **Location:** [Site Address/Location & Specific Location within Structure (e.g., Grid Coordinates)]
- **Client Name:** [Name of Client/Company]
- **Date of Testing:** [DD/MM/YYYY]
- **Purpose of Testing:** [Baseline Inspection/In-Service Inspection/Post-Modification Inspection/Condition Assessment]
- **Testing Method Used:** [UT/RT/MT/PT/VT/ET/AE/LT]
- **Reference Standards:** [ASTM/ISO/ASME/API/OSHA - Specify exact standard and edition]
- **Weather/Conditions During Testing:** [Temperature, Humidity, Wind, etc.]

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2. Inspection Details

- **Description of Tested Areas:** [Detailed description referencing engineering drawings or coordinate system]
- **Test Equipment Used:** [Equipment Name, Model, Serial Number, Calibration Details]
- **Test Parameters:**
    - **(Conditional Fields based on Testing Method):**
        - **UT:** Probe Frequency, Angle, Sensitivity, Couplant
        - **RT:** Source Type, Exposure Time, Film Type, Distance
        - **MT:** Current Type, Magnitude, Particle Type, Lighting Conditions

        - **PT:** Penetrant Type, Dwell Time, Developer Type, Cleaning Method
        - **VT:** Lighting Intensity, Magnification, Distance
        - **ET:** Frequency, Probe Type, Gain, Phase
        - **AE:** Sensor Type, Threshold, Gain, Frequency Range
        - **LT:** Test Pressure, Leak Detection Method, Sensitivity
    - **Surface Preparation:** [Cleaning, Coating Removal, etc.]

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3. Test Results

- **Pass/Fail:** [Indicate for each tested area]
- **Observed Defects:**
    - **Defect Classification:** [Cracks, Corrosion, Porosity, Inclusions, Laminations, Weld Imperfections, etc. - Based on ASTM E1316]
    - **Defect Dimensions:** [Length, Width, Depth]
    - **Defect Orientation:** [Angle, Direction]
    - **Defect Location:** [Precise location relative to reference point or coordinate system]
    - **Defect Quantity:** [Number of defects]
    - **Defect vs. Discontinuity:** [Is it a Defect based on acceptance criteria? Yes/No, Reference standard]

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4. Findings

- **Detailed Analysis of Results:** [Thorough analysis of test results, trends, patterns, anomalies]
- **Severity of Defects:**

    - [Use Table 1 from research, or similar, to classify severity. Must reference Acceptance Criteria from Standards.]
    - **Justification for Severity Level:** [Explanation of how the defect impacts structural integrity]
- **Root Cause Analysis (if applicable):** [Material Fatigue, Corrosion, Manufacturing Defects, Overloading, Environmental Factors, etc.]
    - **Link to Structural Integrity Implications:** [How the root cause affects the structural integrity]

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5. Recommendations

- **Immediate Actions Required:** [Temporary Support, Isolation, etc.]
    - **Justification for Immediate Actions:** [Explanation of urgency]
- **Long-Term Monitoring Suggestions:** [Monitoring Techniques, Frequency, Acceptance Criteria]
- **Repair or Reinforcement Recommendations:** [Repair Methods, Materials, Procedures, Engineering Drawings]
- **Follow-Up Testing Requirements:** [Type of Testing, Extent, Acceptance Criteria]

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6. Technician Information

- **Technician Name:** [Full Name]
- **Signature:** [Digital/Handwritten]
- **Certification Number:** [e.g., ASNT Level II/III, ISO 9712]
- **Certification Body:** [Organization that issued the certification]
- **Certification Expiration Date:** [DD/MM/YYYY]
- **Personnel Field of Application:** [Welds, Castings, Forgings, etc.]
- **Company Name:** [Testing Company/Organization]

- **Contact Information:** [Email, Phone Number, Address]

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7. Attachments

- **Photographs/Drawings:** [Defects, Tested Areas, Equipment Setup]
- **Calibration Certificates:** [Testing Equipment]
- **Map of Indications:** [Visual representation of defect locations]
- **Raw Data/Logs:** [Charts, Graphs, Data Files]
- **Relevant Engineering Drawings.**

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8. Approval and Review

- **Reviewed By:** [Name and Signature of Supervising Engineer/QA Personnel]
- **Date of Review:** [DD/MM/YYYY]
- **Approval Status:** [Approved/Rejected/Needs Revision]
- **Reviewer Comments:** [Justification for approval status, required revisions]

Table 1: Severity Levels for Defects (Example)

Severity Level	Description	Example Criteria
Negligible	Defect size and type are well within acceptable limits and pose no immediate or foreseeable threat to structural integrity or performance.	Surface scratch not exceeding specified length and depth limits in a non-critical area as per [Specific Standard].
Minor	Defect size or type slightly exceeds optimal conditions but does not significantly compromise structural integrity or performance under normal operating conditions. May require monitoring or future inspection.	Small corrosion pit within acceptable limits but showing signs of progression according to [Specific Standard].
Moderate	Defect size or type approaches or slightly exceeds critical limits, potentially impacting structural integrity or performance under certain loading conditions. Repair or increased monitoring may be necessary.	Crack length nearing the maximum allowable limit specified in [Specific Design Code] for a secondary structural member.
Critical	Defect size or type significantly exceeds critical limits, posing an immediate threat to structural integrity and potentially leading to failure under anticipated loads. Immediate repair or replacement is required.	Crack exceeding the allowable size for a primary load-bearing element according to [Specific Standard].