



# **NIICAP Auditing Standard: AS-1 Program for Accreditation of Field and Shop Coatings Contractor**

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## 1. INTRODUCTION

- 1.1. NIICAP™ is the Contractor Accreditation Program of the NACE International Institute Business Services LLC (hereafter referred to as NIIBS). This document is the NIICAP AS-1 Standard, “Program for Accreditation of Field and Shop Coating Contractors” (hereafter referred to as AS-1). This standard should be used in accordance with the Contractor Accreditation Program Policies and Procedures Manual (Reference 2.1) to conduct quality management audits for shop and field industrial/marine coating and lining operations.
- 1.2. Requiring NIICAP accreditation will improve the level of confidence that the owner has when (s)he evaluates and selects a contractor to perform work. Participation in NIICAP is an indication that the contractor holds its work to a high standard of quality.
- 1.3. AS-1 is a NIICAP auditing standard and represents a consensus of the NIICAP development group that reviewed this standard, its scope, and its requirements.
- 1.4. Following initiation of the NIICAP accreditation programs, the technical requirements of AS-1 will be managed by the NIICAP Oversight Board. Administrative oversight of the NIICAP accreditation programs is by NIIBS personnel, the NIICAP Oversight Board, and the Policies and Procedures Committee of the NACE International Institute.
- 1.5. Coating application standards, testing, and acceptance criteria are based on coating application standards, testing, and acceptance criteria as shown in References 2.2 and 2.3.
- 1.6. Management practice assessments are based on Reference 2.5.

## 2. REFERENCE DOCUMENTS

- 2.1. NIIBS “Contractor Accreditation Program Policies and Procedures Manual” 2015 (use latest revision) (Houston, TX: NACE International Institute).
- 2.2. ANSI/NACE No. 13, ANSI/NACE/SSPC Standard Practice: “Industrial Coating and Lining Application Specialist Qualification and Certification” 2008 (use latest revision) (Houston, TX: NACE International and Pittsburgh, PA: SSPC).
- 2.3. ASTM D 4228-99: “Standard Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces,” (use latest revision).
- 2.4. NIIBS, “NIICAP Auditor Manual,” 2015 (use latest revision) (Houston, TX: NIIBS Inc.).
- 2.5. ANSI/ISO/ASQ Q9001-2008: “Quality Management Systems – Requirements” (use latest revision).
- 2.6. NIICAP Contractor Program Process Map (use latest revision) (Houston, TX: NIIBS Inc.).
- 2.7. NIICAP Standard: AS-2, “Program for Accreditation of a Coating Contractor’s Hazardous Waste Removal and Management Program” (referred hereinafter as NIICAP AS-2) (use latest revision) (Houston, TX: NIIBS Inc.).
- 2.8. NIICAP Standard: AS-3, “Program for Accreditation of Employer Coating Applicator Training Programs” (referred hereinafter as NIICAP AS-3) (use latest revision) (Houston, TX: NIIBS Inc.).

## 3. SCOPE

NIICAP applies to all industrial and marine surface preparation and coating or lining application work performed by a NIICAP-accredited coating contractor firm. The intent of the program is to determine whether an industrial/marine coatings contractor has access to the

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personnel, organization, qualifications, procedures, knowledge, and capabilities to meet customer specifications on time, the first time, and within budget.

3.1. In some cases, owners may choose not to invoke NIICAP as a requirement for contractor bids, or they may choose to require NIICAP accreditation but exempt contractors from certain NIICAP requirements. The fact that the owner exempts a requirement will not affect the NIICAP accreditation process or requirements because the contractor may use the accreditation on jobs in which there is no exemption from NIICAP requirements.

3.2. In all cases, owners are responsible for reviewing appropriate health, safety, environmental, and regulatory documents and for determining their applicability in relation to NIICAP prior to its specification.

3.3. The baseline NIICAP accreditation is NIICAP AS-1. It provides a core accreditation for the capability to perform surface preparation and coating/lining application process either in shop or in the field. After achieving the baseline accreditation, contractors may seek additional NIICAP accreditation. This standard, AS-1, is the accreditation for field and shop coatings contractors based on References 2.2 and 2.3. The accreditations possible based on this audit standard are:

3.3.1. AS-1 F: Accreditation based on this audit standard is for surface preparation and coating/lining application work performed outside of a contractor's fixed facility. Examples include surface preparation and coating/lining application on marine equipment, ships, municipal water tanks, bridges, overpasses, facility equipment or tanks, wastewater treatment facilities, or offshore facilities.

3.3.2. AS-1 S: Accreditation based on this audit standard is for surface preparation and coating/lining application performed in a fixed facility where the work items are brought to the facility. Examples include parts, foundations, and pieces used in manufacturing other products, as well as parts or structures removed from job sites, as described in Paragraph 3.3.1.

3.3.3. If a contractor performs shop and fieldwork, the contractor may apply for both categories of AS-1 accreditation.

3.3.4. NIICAP accreditations for specialty fields will be addressed individually and may use auditing standards other than AS-1.

3.3.5. Accreditations that are simply a more in-depth review of general operations will be based upon AS-1.

3.4. A NIICAP accreditation does not ensure, guarantee, or certify that a contractor performs in a professional, efficient, contracted, or ethical manner. A NIICAP accreditation indicates that a contractor (a) meets the relevant auditing standard(s) at the time that the NIICAP official audit is performed, and (b) a sampling of the work performed, prior to and at the time of the audit, based on shop, field, and recorded observations, meets the relevant auditing standard(s).

3.5. NIICAP accreditation, as implemented by AS-1, provides industry and government with a recognized initial and ongoing accreditation program to verify that a contractor and its relevant employees have demonstrated or produced the following:

3.5.1. Availability of resources and capabilities to perform industrial surface preparation and coating application work in accordance with the project specification or contract in a professional and efficient manner.

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3.5.2. Documented experience of at least six (6) months history performing industrial surface preparation and coating application work in accordance with the applicable project specification or contract in a professional and efficient manner, unless otherwise specified.

3.5.3. Management and indirect support infrastructure is in place to provide for schedule and cost-effective management and execution of work performed by in-house or subcontracted personnel.

3.5.4. Specialized skills and documented trade skills training required to perform the surface preparation and coating application practices in the specialized applications in which the contractor maintains an accreditation. Specialized skills may have been witnessed on one or more audits; however, on each audit the probability is that only one skill can be observed.

## 4. DEFINITIONS

For use within NIICAP and this standard, definitions shall apply as shown in Reference 2.1.

## 5. INITIAL AND RENEWAL ACCREDITATION PROCEDURES

5.1. The process for Initial and Renewal accreditation is a very thorough review of management processes, documentation, and recordkeeping, and includes an extensive field audit of work practices and equipment availability, condition, and use. The Maintenance accreditation process is similar to the Initial or Renewal accreditation process; however, it involves validation of known work practices and is less intensive.

### 5.2. Initial or Renewal Accreditation Process Overview

5.2.1. Contractor submits application form (available at [www.niicap.net](http://www.niicap.net)), fees, and supplemental forms and information. The submission should be in PDF format and include:

5.2.1.1. Work experience form; detail of owners and projects worked within the last twelve (12) months.

5.2.1.2. Company officers' information sheet; information on each of the principal company officers and management team.

5.2.1.3. Work specification for the job(s) in which the shop/field observations will be performed.

5.2.1.4. List of experience and third-party certification as applicable for each individual in the following positions:

5.2.1.4.1. Hazardous waste program manager;

5.2.1.4.2. Environmental, safety, and health manager;

5.2.1.4.3. Competent person;

5.2.1.4.4. Qualified person.

5.2.1.4.5. If any of these positions are combined, contractor should list the applicable positions and/or title(s) used by the company for the combined position and the experience and third-party certification as applicable one time only for the combined positions. Contractors may combine positions on some sites and have individual positions on other jobs.

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5.2.1.5. Contractor-specific references such as internal instructions or manuals required to complete the administrative and the shop/field audit, including:

5.2.1.5.1. Statement of quality;

5.2.1.5.2. Organizational chart;

5.2.1.5.3. Mishap investigation policy;

5.2.1.5.4. Quality assurance manual;

5.2.1.5.5. Quality control data collection sheets or programs and instructions for use, including:

5.2.1.5.5.1. Cleanliness verification;

5.2.1.5.5.2. Surface preparation verification;

5.2.1.5.5.3. Coating/lining application verification; and

5.2.1.5.5.4. Environmental readings.

5.2.1.5.6. Discrepancy management procedure (may be part of QA manual);

5.2.1.5.7. Planning and estimating manual, instructions, or spreadsheets, including:

5.2.1.5.7.1. Work breakdown structure examples;

5.2.1.5.7.2. NOTE: For planning and estimating calculation sheets, spreadsheets, and work breakdown structure, proprietary equations, formulas, and assumptions may be redacted prior to submission.

5.2.1.5.8. Hazardous material and/or hazardous waste management manuals, including:

5.2.1.5.8.1. Material tracking direction, database, or spreadsheet examples;

5.2.1.5.9. Training plan for all required training, as outlined in Appendix A;

5.2.1.5.10. Lesson plans for all in-house training;

5.2.1.5.11. Written policy on use of surface preparation or coating/lining application subcontractors;

5.2.1.5.12. Technical requirements documents (transferring specification requirements to worker, giving technical direction);

5.2.1.5.13. Any inspection forms, reminder sheets, or process check sheets used to verify compliance with requirements;

5.2.1.6. Contractor's information sheet, including:

5.2.1.6.1. Current experience modification rate (EMR) used for insurance purposes;

5.2.1.6.2. Current bonding status, bond company, and policy number;

5.2.1.6.3. Current insurance policy cover sheet and declarations sheet, including the current EMR;

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5.2.1.6.4. Information on any health, safety, or environment (HSE), national, state/province, or local citations or notices of violation (pending or final) received within the preceding forty-eight (48) months of an Initial application and within the preceding eighteen (18) months for subsequent applications;

5.2.1.6.5. Information on any outstanding or known pending detrimental legal actions;

5.2.1.6.6. Other company names the contractor has worked under in the past thirty-six (36) months;

5.2.1.7. Contractor facility information sheet for each facility or worksite in which surface preparation and coating/lining application was performed within the last six (6) months, including:

5.2.1.7.1. A physical description of each facility or worksite, including details on surface preparation facility, coating facility, and curing location or worksite conditions;

5.2.1.7.2. Emergency action plan;

5.2.1.7.3. Environmental controls during surface preparation, coating, and cure;

5.2.1.7.4. The applicable policies, quality assurance practices, process instructions, and trade skills training program performed in the facility. If multiple facilities use exactly the same instructions, only one set of instructions is required. If there is any difference between the instructions from one facility to another, a set of each of the differing instructions must be submitted with an indication of which facility uses which instructions.

5.2.1.7.5. Average number of employees on site, including temporary workers and subcontracted workers performing surface preparation or coating/lining application tasks. Include break out the number of each category of worker.

5.2.1.7.6. Total throughput per site per month for the year; either defined by square footage throughput per month for each month covering a year, or a dollar amount per month with an average cost per square foot processed. The intent is for NIICAP to define an approximate schedule to determine environmental risks based on throughput and the facility controls in place at the time of the work;

5.2.1.7.7. Technical support capability at each site;

5.2.1.7.7.1. Number of NACE International Institute CIP Level 3 inspectors, or equivalent; and

5.2.1.7.7.2. Number of technical support personnel available for decisions and direction. (NOTE: Technical support may be available from a remote location);

5.2.2. The NIICAP chief auditor will perform a technical review based on the submitted documentation and develop a list ranking the facilities.

5.2.2.1. All facilities or worksites that are equivalent to, or above the facility or worksite audited in the ranking will be accredited based on the facility audit.

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5.2.2.2. All facilities or worksites ranked lower than the audited facility or worksites will not be accredited until:

5.2.2.2.1. That facility or worksites is successfully audited, or

5.2.2.2.2. Evidence is provided showing that the facility or worksites ranked below the audited facility or worksites has improved adequately to be ranked equivalent to, or above the audited facility or worksites.

5.2.2.3.

5.2.2.4. The contractor may exercise the option to pursue AS-1 accreditation for some facilities while not pursuing accreditation for other facilities.

5.2.2.5. If a contractor exercises the option to pursue AS-1 accreditation only at some facilities, no placard, statement, or evidence of AS-1 accreditation may be displayed or attributed to a facility that has not received AS-1 accreditation.

5.2.3. NIICAP personnel must verify payment of application fees prior to commencing a technical review.

5.2.4. NIICAP administrator reviews submitted documents for administrative records, personnel records, and doing business as.

5.2.5. The company history review will include a review of regulatory sites that provide information on company performance. In the U.S., this includes OSHA and EPA sites.

5.2.6. The NIICAP chief auditor shall review technical portions of the submitted material, owner and job submissions, proof of insurance, bond number, EMR rating, and company history to determine adequacy of the application.

5.2.7. The NIICAP administrator may request any additional information required from the contractor.

5.2.8. The NIICAP administrator shall enter the application and submissions into the database, schedule the audit, and invoice the contractor for the audit fee.

5.2.9. The NIICAP administrator shall select the auditor and send applicable documents to the auditor and the chief auditor via the web based database. The NIICAP administrator may consult with chief auditor to match auditor experience to the type of industry being audited.

5.2.10. The auditor shall review submitted documents and perform the administrative portion of the audit to the maximum extent possible prior to traveling to the contractor's facility. During the document review, the auditor shall complete the audit preparation sheet based on the information provided in the submitted documents. The auditor shall send a copy of the completed audit preparation sheet to the chief auditor prior to consultation. This reduces the time spent during the audit finding facts and details related to the audit.

5.2.11. Successfully completing the administrative portion of the audit is a prerequisite for verifying practices at the contractor's facility. Therefore, if any of the documentation, instructions, or policies are incomplete or inadequate, it may result in a failed audit, and

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the chief auditor shall notify the contractor of the discrepancy. The contractor may request NIICAP to suspend the audit while the discrepancies are addressed and documentation is resubmitted; the request must be submitted to the NIICAP administrator in writing.

5.2.12. After all documentation, procedures, and instructions have been verified to be adequate and NIICAP personnel verifies that contractor has paid audit fees, the auditor shall travel to the contractor's facility, perform the shop/field portion of audit, and complete the administrative portion of audit.

#### 5.2.13. Required Field/Shop Observations

5.2.13.1. The Initial audit and Renewal audits must include observation of a major surface preparation task and a major coating/lining application task.

5.2.13.2. For Maintenance audits, at least one major surface preparation or coating/lining application task must be observed.

5.2.13.3. For each Maintenance audit, the major task that was not observed during the previous audit must be observed during the following audit.

5.2.13.4. If any of these conditions are not met or waived, the shop/field portion of the audit will be considered incomplete and must be rescheduled.

5.2.13.5. If the shop/field portion of the audit is rescheduled to occur within 45 calendar days, the administrative portion of the audit is considered current and is not required to be performed again.

5.2.14. The chief auditor and auditor shall review observations and possible findings during all steps of the audit to determine the facts, the significance of an observation, and whether it warrants an observation, minor finding, or major finding. The chief auditor and auditor shall also determine the appropriate values to assign to each of the observed attributes.

5.2.15. The auditor shall submit the proposed audit report, through the chief auditor, to the NIICAP administrator upon completion of the shop/field portion of the audit. The chief auditor, the auditor, and NIICAP administrator shall review the report and concur or agree on corrections.

5.2.16. The NIICAP administrator shall send an interim letter to the contractor, based on the report submitted per Paragraph 5.2.15, with a copy to the auditor and chief auditor.

5.2.17. The chief auditor and the auditor out-brief with the contractor. Typically, this event is performed by telephone because it occurs several days after the audit. The contractor proposes corrective actions to be performed for consideration by the auditor and chief auditor.

5.2.18. Once accepted, the contractor shall perform the corrective actions and the auditor shall verify the actions, either based on documentation or a follow up shop/field audit. Any follow up audit site-visit shall be performed only after the NIICAP administrator receives payment from the contractor.

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5.2.19. The chief auditor recommends the appropriate action to the appropriate NIICAP Oversight Board subgroup based on the audit report and validation of the corrective actions taken.

5.2.20. On a monthly basis, the NIICAP Oversight Board or a subgroup thereof reviews the monthly reports from the auditor/chief auditor and consider whether to confirm the recommended accreditations. Voting members may not be in the position of doing business with any contractor whose accreditation is being reviewed or having any other conflict of interest.

### 5.3. Maintenance Application Overview

5.3.1. The Maintenance accreditation process is the same as the Initial or Renewal accreditation process; however:

5.3.1.1. The review in the Maintenance audit is less detailed and focused on determining continued consistent performance.

5.3.1.2. If the contractor has multiple locations, each round of Initial, Renewal, and Maintenance accreditation must rotate among the facilities.

### 5.4. Accreditation Cycle and Details

5.4.1. The Initial or Renewal accreditation is valid for one (1) year.

5.4.2. The Maintenance Accreditation is valid for (1) year.

5.4.3. The cycle consists of one (1) Initial accreditation, followed by two (2) Maintenance accreditations, and starts over with one (1) Renewal accreditation followed by two (2) Maintenance accreditations. At the end of the third year, the Renewal cycle is repeated. For detailed actions, refer to Reference 2.6 and Section 7 of this standard.

5.4.4. For contractors that maintain an overall score of 4.0 or greater for the administrative practices section and an overall score of 4.0 or greater for the execution of work shop/field section for an entire accreditation cycle, a 5-Star recognition will be awarded by NIICAP.

### 5.5. 5-Star Recognition

5.5.1. The 5-Star recognition is based on a contractor demonstrating consistent superior work practices and management practices for at least three (3) consecutive audits, including at least (1) Initial or Renewal audit. The 5-Star recognition is based on achieving and maintaining an average score of 4.0 or more for each of the two (2) sections in an AS-1 audit.

5.5.2. If the contractor achieves an average score of 4.0 or more on each section of the applicable AS-1 audit for three (3) years, then the depth of the following Maintenance audit will be reduced, resulting in reduced fees for the contractor. The 5-Star recognition must be re-earned during each subsequent audit, and it affects the following Maintenance audit. However, regardless of the contractor's audit results, each Renewal audit consists of the full Renewal audit.

5.5.3. If the contractor fails to maintain the 4.0 rating during any audit, the 5-Star recognition shall be forfeited and subsequent audits will return to the standard cycle, depth, and cost.

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5.5.4. If the contractor fails to achieve an average score of 3.0 on each of the two (2) sections of an AS-1 Field or AS-1 shop audit, the accreditation may be suspended until a successful Renewal audit is performed.

## **6. AUDITOR QUALIFICATIONS**

NIIBS manages a written process for selecting, training, qualifying, and evaluating NIICAP auditors who are independent contractors to NIIBS. See Reference 2.4.

## **7. CONTRACTOR REQUIREMENTS TO ACHIEVE NIICAP AS-1 ACCREDITATION**

7.1. Business structure. This is a statement of the business practices used by the contractor to manage and deliver a trade skills training program and ensure the quality of the job being performed.

### **7.1.1. Management Structure and Practices**

7.1.1.1. The contractor must have a documented statement of quality policy and documented quality objectives. The statements must be prominently posted and accessible to both managers and workers. The contractor should refer to the quality principles regularly in written and oral format to commit to ensuring that schedule and cost pressures do not negate or dilute the intent of the written quality policy.

7.1.1.2. The contractor must have an effective accident or mishap prevention and investigation policy or procedure, assigned to one management position that determines the root cause(s) of an accident or mishap so that effective measures can be devised and put in place to prevent recurrence. The program must include:

7.1.1.2.1. Review by program managers of periodic in-house surveillance or audit reports to determine compliance with applicable requirements. The program should review data developed by the competent person on findings, corrective actions, surveillance of material storage areas, hazardous waste storage areas, and work practices, and follow up to incorporate lessons learned into the HWM program where practical.

7.1.1.2.2. Prohibit the use of any machinery, tool, or equipment, which is not in compliance with any applicable requirement of this part. Such machine, tool, or equipment shall be either identified by tagging or locking the controls, or removed from the site.

7.1.1.2.3. Requirement that the employer only permits employees qualified by training or experience to operate equipment and machinery.

7.1.1.2.4. Adequate illumination in work areas, and transit areas such as stairs, aisles, and ramps.

7.1.1.2.5. Requirement to develop and maintain an effective fire protection and prevention plan at the job site throughout all phases of work and direction to provide fire protection and suppression equipment.

7.1.1.2.6. Requirement to develop and maintain a housekeeping plan at the job site throughout all phases of work, including the safe removal of debris, scrap lumber, combustible scrap at regular intervals, and containers for the debris.

7.1.1.3. Management team: The contractor must have an effective in-house management team consisting at a minimum of a project manager, environmental

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safety and health (ESH) manager, training manager, qualified person, competent person, and quality assurance manager with capability to succeed with the challenges of a complex job. The hazardous waste manager, ESH manager, quality assurance manager, qualified person, competent person, and training manager functions may be combined. These positions must report to a corporate level manager, and all functions defined below must be specifically assigned.

7.1.1.3.1. The team must have enough depth to support the number of large jobs that the contractor claims to be able to work simultaneously; however, for small jobs, one individual may perform more than one function or some managers may support more than one small project.

7.1.1.3.2. The contractor shall have an organizational chart or contact list for significant personnel within the organization, down to, and including, the foreman or supervisor of each crew. For a large company, the contact list may be broken down into a number of lists covering each location; however, there should be at least one point of contact for each location on the primary list.

7.1.1.3.3. The contractor must have job descriptions for each of the major positions within the organization, including a list of core duties, experience, and training and/or education.

7.1.1.3.4. Qualified person normally reports to the ESH manager, is a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated his/her ability to solve and resolve problems related to the subject matter, the work, or the project.

7.1.1.3.5. Competent person normally reports to the ESH manager, is capable of identifying existing and possible hazards in the surroundings or working conditions and has the authority to take prompt corrective measures to eliminate them. The competent person must have the authority to shut down work and direct containment and clean up actions as necessary. The competent person is responsible for the following functions when they are applicable to the surface preparation or coating/lining application:

7.1.1.3.5.1. Frequent and regular inspections of job sites, materials, and equipment to verify the following actions and programs;

7.1.1.3.5.2. Confined space entry program requirements;

7.1.1.3.5.3. Verifying containment integrity, compliance with specification, and spill clean up actions;

7.1.1.3.5.4. Verifying ventilation system operation and filter efficiency when applicable;

7.1.1.3.5.5. Verifying personnel training prior to assignment;

7.1.1.3.5.6. Verifying proper PPE usage during work operations;

7.1.1.3.5.7. Verifying proper suit up and unsuiting practices;

7.1.1.3.5.8. Direction for first aid services and provisions on site;

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7.1.1.3.5.9. Hazardous waste accumulation and hazardous material storage area inspections and corrective actions for discrepancies;

7.1.1.3.5.10. Managing and reporting worker exposure monitoring data; however, the competent person normally does not perform the monitoring; and

7.1.1.3.5.11. Generating, reporting, and archiving required data collection related to all of the above actions.

## 7.1.2. Quality Assurance Management

7.1.2.1. The contractor shall have a quality assurance program and a documented quality assurance manual. The QA manual will define the position descriptions, training and certification requirements, and responsibilities of personnel related to quality assurance and quality control functions. At a minimum, the positions shall include:

7.1.2.1.1. Quality assurance manager responsible for the overall quality program.

7.1.2.1.1.1. Supervision of project quality assurance managers, and quality control technicians;

7.1.2.1.1.2. Management of in-process QA/QC inspections defined in this audit standard;

7.1.2.1.1.3. Awareness of changes in higher tier requirements that change training requirements, control procedures, engineering controls, or work practices;

7.1.2.1.1.4. Maintenance of the quality assurance manual.

7.1.2.1.1.5. Review of periodic in-house surveillance or audit reports to determine compliance with applicable requirements. The program should review data developed by the quality assurance manager on findings, corrective actions, and work practices, and follow up to incorporate lessons learned where practical;

7.1.2.1.1.6. Archival and review required data and recordkeeping for the Quality Assurance program including audits and surveillances;

7.1.2.1.1.7. Coordination with other managers regarding changes in instructions, inspections, audits, and training requirements; and

7.1.2.1.1.8. Management of audits and surveillances.

7.1.2.1.2. Project quality assurance managers responsible for managing quality control, data collection, record keeping, and reporting functions on each of the projects in process.

7.1.2.1.3. Quality control inspectors responsible for performing in-process hold point inspections, documenting significant aspects and observations of the job, reporting discrepancies for technical resolution, submitting daily or weekly reports as required, and verifying corrective actions or technical adjudication by proper

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authority prior to accepting work. If the quality control inspector is also responsible for job completion, such as the foreman, supervisor, or project manager, there is the potential for a conflict of interest. This practice should be avoided when practical.

7.1.2.2. Depending on the size of the project and project specification requirements, the project quality assurance manager and the quality control inspectors may have additional quality control or production duties; however, production responsibilities may result in a conflict of interest and should be avoided. If independent third-party QA/QC is required by the specification, the QA/QC inspector must not have production responsibilities.

7.1.2.3. Other functions that shall be included in the contractor's QA program may be assigned as appropriate within the organization. The functions include:

7.1.2.3.1. Managing the measurement tools used for collection of data that influences the acceptance or rejection of work;

7.1.2.3.1.1. Equipment maintenance, storage, calibration, and replacement must be managed in a calibration program, including a database or spreadsheet and individual sticker, labeling, or marking on each piece of equipment to ensure accuracy during use;

7.1.2.3.1.2. The program must ensure that out-of-calibration equipment is not available on the job site and does not get used to accept or reject work;

7.1.2.3.1.3. The program must include reference of the individual calibration marking in QC forms where data from the equipment is used to accept or reject work; and

7.1.2.3.2. Definition of the training and certification required to perform data collection and quality control tasks within the company. Training may be provided by a third party such as NACE International, FROSIO, SSPC, other organizations shown in Appendix A, or may be in-house; however, in-house employer training does not qualify a worker to perform independent QA/QC functions. The training must include:

7.1.2.3.2.1. Specific instruction on the use of precision measuring equipment and shop/field validation of the equipment's accuracy. The precision measurement training must be validated based on testing;

7.1.2.3.2.2. Direction for actions to be taken when out of specification data is collected;

7.1.2.3.2.3. Data collection and documentation requirements, including completing a sample set of process QA/QC documentation;

7.1.2.3.2.4. Specific hold point tasks, and general observation tasks;

7.1.2.3.2.5. Importance of objectivity and honesty in data collection and documentation; and

7.1.2.3.2.6. Understanding of applicable acceptance standards.

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7.1.2.3.3. Tracking and analyzing contractor-caused discrepancies, and technical resolution to incorporate improvements. Reporting of the trends to production managers and planners for implementation of process improvements. Activities include:

7.1.2.3.3.1. Tracking, performing, recording and quality control requirements or receipt inspection tasks related to material delivery such as recording:

7.1.2.3.3.1.1. Batch numbers;

7.1.2.3.3.1.2. Expiration dates;

7.1.2.3.3.1.3. Lab or usability testing; and

7.1.2.3.3.1.4. Other technical data collection and visual inspection as appropriate.

7.1.2.3.3.2. Observation of material storage areas for acceptable environmental conditions and controls;

7.1.2.3.3.3. In-process work observation that may affect the quality of the work performed including hold point definition, specific processes that are to be observed and what the documentation requirements are for the observations; and

7.1.2.3.3.4. Performing periodic in-house surveillance or audit functions to determine compliance with applicable requirements. The program should include tracking of findings, corrective actions, and follow up to verify effectiveness of the proposed corrective actions.

### 7.1.3. Planning and Estimating

7.1.3.1. The contractor must have a process for review of specifications or contracts prior to submitting a bid to determine whether the company has the skills and experience to perform and manage the work. The review process shall include:

7.1.3.1.1. Reading and understand the entire specification and applicable references, product data sheets, or enclosures. The process should involve documentation such as a spreadsheet, and process comparisons for surface preparation and coating/lining application;

7.1.3.1.2. Performing a jobsite tour, preferably with the planner and the execution manager or project manager who oversees the work, representatives of the QA/QC personnel, and the owner's representative. There may be times when this is impractical. If that is the case, the jobsite review may be accomplished on a similar facility or project, or by use of photographs, or as a last choice, by interview. The further the jobsite review is removed from an actual tour with the customer and the production personnel, the greater the risk of unknown circumstances to affect the cost and schedule;

7.1.3.1.3. Review of proposed processes to determine whether they are applicable to the work and whether they are feasible options for performing the work within all applicable constraints, such as:

7.1.3.1.3.1. Schedule;

7.1.3.1.3.2. Weather;

7.1.3.1.3.3. Cost;

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7.1.3.1.3.4. Containment and staging requirements;

7.1.3.1.3.5. Available workforce with a skill mix consistent with the proposed methods; and

7.1.3.1.3.6. Available industrial equipment such as UHP pumps, blast equipment, dust collection equipment, and dehumidification equipment.

7.1.3.2. Review of the proposed materials to determine whether they are consistent with the intended service life and service environment;

7.1.3.3. The planning and estimating personnel should be knowledgeable of the work to perform the following functions:

7.1.3.3.1. Sequence work properly to:

7.1.3.3.1.1. Perform as much shop work as possible to prepare and preserve all items prior to installation to reduce interference.

7.1.3.3.1.2. Prepare and preserve inaccessible areas when equipment is removed or shut down.

7.1.3.3.1.3. When purchasing equipment to be installed, either specify the correct coating system as part of the purchase specification, or ensure the correct coating system is applied prior to installation when practical to avoid rework.

7.1.3.3.1.4. Require production managers to review documentation prior to sequencing work and give feedback from production managers after work to incorporate lessons learned.

7.1.3.3.1.5. Review contractor caused discrepancies and resolution from previously performed similar work and incorporate lessons learned into new work to reduce rework and improve first time quality.

7.1.3.4. Hazardous waste removal cost planning:

7.1.3.4.1. Contractor shall include the cost of hazardous waste removal, management, and disposal when required by the specification or higher tier regulations; and

7.1.3.5. The contractor should make a positive statement in the bid submission specifying what costs are included, and what costs may be an additional charge.

7.1.4. Hazardous Material Management

7.1.4.1. The contractor shall have a formal hazardous material management program to manage hazardous materials used during the surface preparation and coating/lining application processes. The program must comply with, but not be limited to, appropriate local, state/provincial, and federal statutes.

7.1.4.2. The program shall include at least the following elements:

7.1.4.2.1. The hazardous material and hazardous waste programs must be coordinated to cover cradle-to-grave requirements for material/waste handling;

7.1.4.2.2. A method to estimate the required type, amount, and need date of material to prevent work stoppage or waste as a result of excessive or old material;

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7.1.4.2.3. Estimate the required solvent for equipment cleaning, surface preparation cleaning, and material thinning, if allowed;

7.1.4.2.4. A method for communicating any thinning allowance and documentation required when thinning to the job site workers;

7.1.4.2.5. A plan for material delivery, segregation, usage, and disposal tracking for inventory management;

7.1.4.2.6. Address storage and use requirements for hazardous materials, such as:

7.1.4.2.6.1. Secondary containment as required;

7.1.4.2.6.2. Segregation of incompatible materials;

7.1.4.2.6.3. Explosion proof storage facilities with environmental controls;

7.1.4.2.6.4. Spill prevention and recovery protocol and equipment; and

7.1.4.2.6.5. Eyewash stations.

7.1.4.2.7. In some cases, spent material may be disposed of as hazardous material, which should be recycled by a licensed recycler instead of being disposed of as waste. If this is the case, a mix of hazardous material and hazardous waste requirements apply to the spent material during storage and transfer or transportation to the licensed recycling facility. This subject is addressed in greater detail in NIICAP Standard AS-2;

7.1.4.2.8. Address worker safety and health requirements related to working with hazardous material. Worker safety and health requirements include:

7.1.4.2.8.1. "Right to know" notifications for each hazardous material being used or stored at the work site;

7.1.4.2.8.2. Training, work practices, material inventory, exposure monitoring, and PPE requirements;

7.1.4.2.8.3. A written, readily accessible safety and health program that identifies, evaluates, and controls safety and health hazards and provides for emergency response;

7.1.4.2.8.4. A preliminary site evaluation conducted by a qualified person to identify potential site hazards and to aid in the selection of appropriate employee protection methods;

7.1.4.2.8.5. A site control program to protect employees against hazardous contamination. At minimum it must have a site map, site work zones, site communications, safe work practices, the use of a "buddy system," and identification of the nearest medical aid;

7.1.4.2.8.6. Medical surveillance of workers exposed at or above permissible exposure limits for hazardous substances, performed (1) at least annually, (2) when a worker moves to a new work site, (3) when a worker experiences exposure from unexpected or emergency releases and (4) at the end of employment;

7.1.4.2.8.7. Contractor shall ensure the availability of personnel for advice and consultation for job related health issues;

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7.1.4.2.8.8. If an infirmary, clinic, or hospital is not reasonably accessible to the work site, which is available for the treatment of injured employees, the contractor must ensure at least one employee with a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid; and

7.1.4.2.8.9. First-Aid Kit. First-Aid supplies are easily available on the work site.

#### 7.1.5. Hazardous Waste Management

7.1.5.1. The contractor shall have a formal hazardous waste management program to manage hazardous waste that is generated during the cleaning, surface preparation, and coating/lining operations. The program must comply with, but not be limited to, appropriate local, state/provincial, and federal statutes.

7.1.5.2. The hazardous material and hazardous waste programs must be coordinated to cover cradle-to-grave requirements.

7.1.5.3. The hazardous waste program shall include at least the following elements:

7.1.5.3.1. Hazardous waste generation personnel (abrasive blasters, mechanical tool operators exposed to hazardous waste in the course of material removal, painters or painter helpers exposed to solvents or liquid paint, or other exposure) and training as appropriate for the nature of the work being performed prior to exposure;

7.1.5.3.2. Provisions for either testing existing coatings for hazardous constituents or managing coating removal practices and waste management as hazardous waste;

7.1.5.3.3. A plan to address storage and handling requirements for hazardous waste, such as:

7.1.5.3.3.1. Hazardous waste facility permit (if required);

7.1.5.3.3.2. Posting of the following information at the emergency phone:

7.1.5.3.3.2.1. Name and phone number for the emergency coordinator;

7.1.5.3.3.2.2. Location of fire extinguishers and spill control materials. If there is a fire alarm, that location must also be identified; and

7.1.5.3.3.2.3. Telephone number for fire department unless the facility has a direct alarm.

7.1.5.3.3.3. Secure storage area;

7.1.5.3.3.4. Procedure to ensure waste accumulation does not exceed National or regional limits;

7.1.5.3.3.5. Containerization;

7.1.5.3.3.6. Secondary containment where applicable;

7.1.5.3.3.7. Segregation of incompatible waste;

7.1.5.3.3.8. Labeling, including:

7.1.5.3.3.8.1. The words "Hazardous Waste;"

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7.1.5.3.3.8.2. Name or description of the contents;

7.1.5.3.3.8.3. The date the initial waste was placed in the container in a 90 or 180 day area, or the date the accumulation exceeded fifty-five (55) gallons for a satellite accumulation area.

7.1.5.3.3.9. Explosion proof storage facilities where applicable;

7.1.5.3.3.10. Spill prevention and recovery;

7.1.5.3.3.11. Eyewash stations;

7.1.5.3.4. For waste that is designated as something other than hazardous waste all applicable requirements must be met, such as, but not limited to:

7.1.5.3.4.1. "Empty Container" must be a container with less than one (1) inch of remaining hazardous material in it. The contents of the container must be in a solid form (cured or dried) and must not have been treated, backfilled with solid material, or obscured in general trash;

7.1.5.3.4.2. All waste must be characterized after collection, but prior to disposal to ensure hazardous waste does not inadvertently get disposed of in a non-permitted manner; and

7.1.5.3.4.3. Waste that has not yet been characterized must be segregated, labeled, and collected in a manner consistent with hazardous waste pending characterization.

7.1.5.3.5. Address worker safety and health requirements related to working with hazardous waste in accordance with Paragraph 7.1.4.2.8 and all subparagraphs.

## 7.2. Interface with Customer, Inspectors, Vendors, and Subcontractors

7.2.1. The contractor must be able to provide evidence of effective communication with the customer, employees, inspectors, vendors, and subcontractors to facilitate coordination and agreement on expectations during the job.

7.2.2. The contractor must have a phone list for the project being worked that includes the appropriate functions identified above.

7.2.3. The following are some examples of communications that may occur. The contractor should have the appropriate production and/or planning personnel at each of the meetings below and be able to provide evidence of participation in these meetings:

7.2.3.1. Pre-bid meeting;

7.2.3.2. Pre-job meeting; and

7.2.3.3. Daily meeting.

## 7.3. Cost and Schedule Management

7.3.1. The contractor shall have an effective work breakdown structure to know with reasonable accuracy the progress of the job vs. the initially projected schedule and cost.

7.3.2. The work breakdown structure should track discreet tasks or jobs through completion and roll those values up indicating percentage of the larger project completed. Possible sources for the raw data include:

7.3.2.1. Supervisor input;

7.3.2.2. Progress tracking based on assigned tasks being completed;

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7.3.2.3. Independent assessment; and

7.3.2.4. Milestone tracking.

7.3.3. The contractor should review progress, cost and schedule compliance, and consistently analyze whether he or she should adjust schedules, workforce numbers, or skill mix, or methods to recover if the current conditions are not consistent with the accepted cost or schedule.

7.3.4. The contractor should plan for the most efficient method to perform work, including:

7.3.4.1. Surface preparation methods;

7.3.4.2. Coating application methods;

7.3.4.3. Work sequencing;

7.3.4.4. Containment requirements;

7.3.4.5. Environmental control requirements (DH, filtered exhaust vent, etc.); and

7.3.4.6. Logistical requirements (staging, elevated work platforms), rental equipment, material delivery and storage, waste management, and disposal.

#### 7.4. Discrepancy Identification, Reporting, and Resolution Practices

7.4.1. The contractor shall have a method for processing discrepancies in real time; including:

7.4.1.1. Identifying, tracking, and submitting a discrepancy; and

7.4.1.2. Reviewing the condition to verify it is a discrepancy and that it is accurately defined prior to submission.

7.4.2. The owner should be expected to provide technical support for discrepancy resolution. This function may be delegated to the contractor. If so, the contractor may be responsible for the following functions related to technical review and authorization to recover from the discrepancy:

7.4.2.1. Provide a response with adequate technical rationale for the recovery actions;

7.4.2.2. Provide a second technical review process for technical adequacy prior to approval of the recovery action;

7.4.2.3. Provide adequate time for return of the approved technical direction to support continuation or a minimal shut down of in-process work;

7.4.2.4. Provide timely delivery of the technical direction to the worker so the work disruption is as small as practical; and

7.4.2.5. If the contractor provides the technical direction for recovery, the owner's representative should provide a second approval prior to implementing the recovery action.

7.4.3. The contractor is responsible for discrepancy and resolution tracking and incorporation into future work when applicable to reduce rework and improve first-time quality.

#### 7.5. Training and Skills Development of Surface Preparation and Application Employees

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7.5.1. The contractor shall have a formal, documented training program for all employees. The program will include and document all training required by Appendix A. The training plan will include skills and proficiencies, instructor-led training, on-the-job-training, and skills testing for various levels of employees, from entry-level laborers to technicians skilled in the use of technical equipment appropriate for the work performed by the contractor. Training can be provided via commercially available training, in-house training, or a combination of both. The training plan must address each of the employee positions mentioned in Appendix A. Examples of technical surface preparation and application equipment include: UHP equipment, abrasive blasting equipment, plural component spray equipment, airless spray equipment, conventional and HVLP equipment, electrostatic and powder coating equipment.

7.5.2. The contractor's applicator training program may be delivered internally or by a third party or commercially available program. NIICAP recognizes the following third-party programs as meeting the requirements of general applicator trade skills training and meeting or exceeding the body of knowledge requirements of Reference 2.2:

7.5.2.1. IUPAT (International Union of Painters and Allied Trades). Apprenticeship Training Program for Painters;

7.5.2.2. NCCER Industrial Lining and Coating Application Specialist Training Program;

7.5.2.3. SSPC Coating Applicator Specialist Training Program;

7.5.2.4. NACE International Coating Application Training Program (available 2016);  
or

7.5.2.5. NACE International Institute Coating Applicator Certification Program (available 2016).

7.5.3. The training program must include the following details:

7.5.3.1. A training plan and a tracking system for each employee that includes:

7.5.3.1.1. Training programs completed by the employee;

7.5.3.1.2. Certifications held by the employee;

7.5.3.1.3. Skills testing completed by the employee, observations, and approvals;

7.5.3.1.4. A training plan for advancement through certification for a defined skill set;

7.5.3.1.5. Written input from the supervisor regarding employee progress based on observation of work performed by the employee; and

7.5.3.1.6. An annual review of the training to determine whether the training plan is being followed or if modification is required.

7.5.3.2. A supervisor, training manager, or lead person assigned to maintain and review the tracking and progress of the employees, and maintain copies of progress reviews including strengths and weaknesses if appropriate. The employee and the supervisor or training manager will sign the review indicating that the employee was counseled on his/her status.

7.5.3.3. The training manager's duties also include:

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7.5.3.3.1. Managing the training program and implementing the training plan through any combination of commercially available training and in-house training, classroom, and jobsite instruction and observation;

7.5.3.3.2. Awareness of changes in higher-tier requirements that change training requirements, control procedures, engineering controls, or work practices;

7.5.3.3.3. Maintenance of training plans and documentation supporting the training plans;

7.5.3.3.4. Maintenance of lesson plans for any subjects taught with in-house training;

7.5.3.3.5. Verification of higher tier requirements for in-house lesson plans;

7.5.3.3.6. Maintenance of documentation verifying training such as rosters and certification for all employees with certification;

7.5.3.3.7. Generation of reports and employee certificates indicating pass/fail and upcoming recertification dates for each employee; and

7.5.3.3.8. Coordination with other managers regarding changes in instructions, inspections, audits, and training requirements.

7.5.3.4. The contractor's training plan will define the employee progress review frequency. Some options may include annually, at the end of a project, an exit interview prior to the end of employment, or as defined in the contractor's training program. The frequency will be at least annually.

7.5.3.5. Training may be cursory or in-depth, depending on whether the training is intended to make an employee aware of a program, or if the training is intended to qualify the employee to actively participate in the task. An example is crane safety training for a painter who does not operate a crane; the training would consist of awareness of the hazards and how to avoid them. Crane safety training for a painter who also operates a crane or performs rigging tasks would include hand signals, how to operate the crane, how to communicate an emergency stop, appropriate rigging practices, etc.

7.5.3.6. The training plan must include basic training for employee safety and health requirements and environmental practices necessary to prevent spills or inadvertent discharge of hazardous material or hazardous waste to the environment. This training may be in-house or commercially obtained. There should be evidence that all personnel have had safety and health training including employee "right to know" training, and all personnel working with abrasive media or coatings have had environmental training.

7.5.3.7. Appendix A identifies the training and certification requirements for a trainer or instructor for trade skills and for environmental, safety, and health training. Trainers delivering content related to environmental, safety, and health subjects required under local, state/provincial, or federal statutes may also be required to have specific training in accordance with those or similar statutes.

#### 7.5.4. Employer's In-House Surface Preparation and Application Training Programs

7.5.4.1. In some cases NIICAP will perform a separate audit of a contractor's in-house training program and, if the program meets NIICAP's criteria, NIICAP will endorse the in-house training program in accordance with NIICAP Standard AS-3. The AS-3 accreditation is separate from accreditation in this standard.

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7.5.4.2. The NIICAP AS-3 accreditation addresses requirements for an employer's in-house training program on surface preparation tasks and coating/lining application tasks. NIICAP does not include any accreditations for personnel who perform independent QA/QC tasks. The only current method to obtain independent QA/QC qualification is by successfully completing one of the recognized commercially available courses.

7.5.5. Appendix A defines the percentage of personnel required to have training or certification by job, and what training or certification is acceptable to meet the requirement.

7.5.5.1. Personnel being trained for a position or receiving on the job training are not counted in the required percentage. The contractor must show evidence of a proactive program that ensures the employee receives the required training within three (3) months from the date of assignment for the position. The three (3) month grace period does not apply to OSHA or EPA training that is required prior to exposure to the hazard.

## 7.6. Documentation Practices

7.6.1. The contractor will maintain a library (electronic or hard copy) of applicable standards, technical reports, SDSs (MSDSs), and product data sheets as invoked or referenced by specifications for all work being performed. Applicable standards, SDSs (MSDSs), and product data sheets must be available at the work site in a format that supports review by workers and managers. SDSs (MSDSs) sheets must be available in hard copy format within five (5) minutes of the request to support urgent notification for emergency personnel.

7.6.2. The contractor should have a written procedures manual, or compilation of instructions covering all significant aspects of the contractor's business practices. The instructions should include as a minimum procedures for:

7.6.2.1. Bid review and proposal writing.

7.6.2.2. Pre-bid, pre-job, and daily meeting practices.

7.6.2.3. Conversion of contract requirements to working documents used in the shop/field to provide technical direction for employees, inspectors, and project support personnel.

7.6.2.4. Quality assurance/quality control tasks including:

7.6.2.4.1. Data collection and documentation practices for QC documentation supporting work performed.

7.6.2.4.2. Hold points where inspection is required prior to continuing work.

7.6.2.4.3. 100% visual inspection of surfaces.

7.6.2.4.4. Environmental data.

7.6.2.4.5. Profile, cleanliness including visible and non-visible contaminants.

7.6.2.4.6. Dry film thickness (DFT) readings.

7.6.2.4.7. Hold point acceptance.

7.6.2.4.8. Discrepancy identification and resolution.

7.6.2.4.9. Reporting based on frequency and requirements of the specifications

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7.6.2.4.10. Ability to retrieve and produce hard copy or electronic format of QC documentation and support documentation generated for any specification that was bid or executed.

7.6.2.5. Support documentation or manuals for equipment.

## 7.7. Use of In-House or Subcontractor Resources

7.7.1. In cases in which the contractor uses sub-contracted labor for surface preparation and coating/lining application, the contractor should have a written policy regarding the use of in-house vs. subcontracted surface preparation and coating/lining application labor. This section is not applicable to subcontracting support functions such as rigging, crane operations, containment, and staging unless the subcontractor also performs surface preparation and/or coating/lining application. The policy will include directions for:

7.7.1.1. Contractor decision practices regarding the use of in-house vs. subcontracted labor, including risk assessment and mitigation actions;

7.7.1.2. Strategy regarding use of sub-contracted labor (primary labor source, balance workload, or intermittent use only when workload exceeds contractor's normal capabilities);

7.7.1.3. Practices and basis for selecting subcontractors either based on low bid, a detailed proposal and risk assessment, or a combination of both;

7.7.1.4. Practices regarding management and oversight for subcontractors;

7.7.1.5. Practices that ensure the subcontractor has all of the certifications and licenses or permits required by the specification or higher-tier requirements to perform the work; and

7.7.1.6. Practices detailing how the prime contractor accomplishes inspections and develops QC documentation when using a subcontractor, such as:

7.7.1.6.1. Independent QC inspection for all work;

7.7.1.6.2. Prime contractor perform QC inspection for all work;

7.7.1.6.3. Prime contractor accept inspections from the subcontractor (either based on personal observation or review of certified records); and

7.7.1.6.4. Some combination of all of the above.

## 7.8. Execution of Work Shop/Field Audit

7.8.1. Shop/field inspections will be performed to verify attributes of this section, including:

7.8.1.1. Technical requirements document:

7.8.1.1.1. Description of the work to be performed;

7.8.1.1.2. Specific direction for surface preparation standards;

7.8.1.1.3. Specific direction for coating/lining to be applied, DFTs, cure times, environmental requirements, etc.; and

7.8.1.1.4. Specific directions for hold points to be performed;

7.8.1.2. Work authorization document (if required);

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- 7.8.1.3. Emergency action plan, including the following:
    - 7.8.1.3.1. Emergency escape routes;
    - 7.8.1.3.2. Procedures for employees who remain to operate equipment prior to evacuation;
    - 7.8.1.3.3. Procedures to account for all employees;
    - 7.8.1.3.4. Rescue and medical duties for those employees who are to perform them;
    - 7.8.1.3.5. Preferred method to report fires and emergencies;
    - 7.8.1.3.6. Point of contact for further information regarding the plan;
    - 7.8.1.3.7. Types of evacuation to be used in emergency circumstances; and
    - 7.8.1.3.8. Contractor emergency action plan should include notification of local emergency management authorities regarding the location of work, start and stop dates, the probable hazards involved with the work being performed, and contractor's point of contact;
  - 7.8.1.4. Third party inspection and data collection documentation;
  - 7.8.1.5. Documentation and resolution of discrepancies;
  - 7.8.1.6. Logistical support;
  - 7.8.2. Execution elements, including:
    - 7.8.2.1. Surface preparation:
      - 7.8.2.1.1. Environmental requirements for surface and ambient temperatures, humidity, and dew point;
      - 7.8.2.1.2. Environmental requirements for containment of contaminants;
      - 7.8.2.1.3. Equipment/staging condition;
      - 7.8.2.1.4. Abrasive media required/used; and
      - 7.8.2.1.5. Abrasive media testing in accordance with SSPC-AB 1, AB 2, AB 3 or AB 4 as required based on the abrasive media selected and the blasting standard invoked, or as required by the specification;
      - 7.8.2.1.6. Surface cleanliness prior to preparation, including:
        - 7.8.2.1.6.1. Visible contaminants; and
        - 7.8.2.1.6.2. Nonvisible contaminants;
      - 7.8.2.1.7. Surface cleanliness after preparation, including:
        - 7.8.2.1.7.1. Visible contaminants; and
        - 7.8.2.1.7.2. Non-visible contaminants;
      - 7.8.2.1.8. Surface profile;
      - 7.8.2.1.9. 100% visual inspection or frequency required by specification;
      - 7.8.2.1.10. Required hold points observed and accepted;
    - 7.8.2.2. Coating/lining application;

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- 7.8.2.2.1. Environmental requirements for surface and ambient temperatures, humidity, and dew point;
  - 7.8.2.2.2. Environmental requirements for containment of contaminants;
  - 7.8.2.2.3. Equipment/staging condition;
  - 7.8.2.2.4. Material storage conditions;
  - 7.8.2.2.5. Material mixing practices/stand in time (for main application as well as touch up);
  - 7.8.2.2.6. Material/solvents required/used;
  - 7.8.2.2.7. Surface cleanliness immediately prior to applying coating;
  - 7.8.2.2.8. Effectiveness of coating method(s) used;
  - 7.8.2.2.9. Professional quality of performed touch ups;
  - 7.8.2.2.10. Adequate cure time between coats and prior to service at the required temperature and humidity;
  - 7.8.2.2.11. Dry film thickness data collection;
  - 7.8.2.2.12. 100% visual inspection or as required by specification; and
  - 7.8.2.2.13. Required in-process and final hold points observed and accepted.

7.8.2.3. Logistical support:

7.8.2.3.1. Contractor must show evidence that there is adequate logistical support to perform the job safely and in an economical manner. Logistical support may include any combination of forklifts, blasting and recovery equipment, UHP, DH, exhaust ventilation, dust collector, staging, containment, aerial work platforms, cranes, rigging personnel, helpers, support trades, hazardous material and hazardous waste storage lockers, restrooms, and break rooms.

7.8.2.4. Hazardous material and consumables are detailed in 7.1.4. Verification in the shop/field observations that the program requirements defined in 7.1.4 are observed. Specifics include, but are not limited to:

- 7.8.2.4.1. Personnel training;
- 7.8.2.4.2. Material segregation;
- 7.8.2.4.3. Material labeling;
- 7.8.2.4.4. Material storage; and
- 7.8.2.4.5. Consumables purchase and availability.

7.8.2.5. Hazardous waste management is detailed in 7.1.5. Verification in the shop/field observations that the program requirements defined in 7.1.5 are observed. Specifics include, but are not limited to:

- 7.8.2.5.1. Personnel training;
- 7.8.2.5.2. Segregation of incompatible wastes;
- 7.8.2.5.3. Containerizing and labeling of all waste;
- 7.8.2.5.4. Secondary containment where required;

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7.8.2.5.5. Ensuring “empty containers” are actually empty (less than one [1] inch or 25.4 millimeters of waste remaining in the bottom) and dry. Containers cannot be left open to dry; and

7.8.2.5.6. Worker safety.

7.8.2.6. Estimating work to include the scope of work defined, including addressing existing hazardous material/waste products;

7.8.2.7. Managing hazardous waste removal, storage, and disposal in accordance with local and higher tier requirements;

7.8.2.8. Supplier access to job site; and

7.8.2.9. Trade support (rigging, transportation, staging).

## **8. PREREQUISITES AND ACTIONS FOR SHOP/FIELD AUDIT**

8.1.1. The contractor must ensure scheduling that allows auditor access to in-process jobs.

8.1.2. If practical, after a specific hold point inspection or concurrent with a specific hold point inspection, the auditor will perform an inspection to determine whether the contractor's in-process inspection is effective at determining discrepancies and accepting work when appropriate.

8.1.3. While work is being performed, the auditor will observe work practices and task execution to determine compliance with technical direction and industry standards as invoked and appropriate.

## **9. AUDIT CRITERIA ATTRIBUTE CREDIT**

9.1. Each audit attribute shall be assigned a numeric value, which is identified in the audit attribute box. Some attributes are for information only and have a value of (0 points.). All scored attributes will have a value of 5 points.

9.2. Attribute scoring shall be as follows:

9.2.1. Outstanding value (5 points) shall be awarded for an outstanding finding of compliance. Requirements for an outstanding rating are included in those attributes in which an outstanding rating is possible. If an outstanding finding occurs, there is no reasonable recommendation to be made for improvement. An outstanding finding indicates the contractor has an efficient process that meets the requirements and minimizes risk, schedule, and cost.

9.2.2. Expected value (3 points) shall be awarded for an adequate or satisfactory finding. Requirements for an expected rating are included in the attributes. Typically, an adequate finding occurs when the contractor's process meets the requirement; however, there is a potential for process improvement to reduce risk, schedule, or cost. It should be noted that generally (3 points) are awarded, and that is an acceptable rating.

9.2.3. One point shall be awarded for an unacceptable finding. Typically, an unacceptable finding occurs when the contractor's documentation or process does not meet the requirement. For the administrative portion of the audit, an inadequate program may warrant a score of (2 points), or nonexistent program may warrant a score of (1 point). An unacceptable finding in the shop/field should result in a failed hold point; however, a failed hold point does not in itself warrant an unacceptable rating. Even the best contractor may fail a hold point occasionally; however, if the contractor does not seem to have control of the process, does not understand the process requirements or

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standards, does not address the discrepancy adequately by either negotiation or repair of the work, an unacceptable rating may be appropriate.

9.2.4. Attributes do not always neatly fall into the defined conditions above. If a finding is between the defined conditions, the auditor should adjust the point value appropriately i.e., a score of (2 points) or (4 points).

9.2.5. Comments or description of the condition are required for all ratings. It is important that after the audit, or when discussing the findings with the contractor, that the auditor can explain specifically what was observed. Comments may be one or two sentences or longer as appropriate. Comments for the Administrative Practices section of the audit may be as simple as the document and paragraph or section where the requirement was found.

9.2.6. If an attribute does not apply to the process or the item being observed, then “N/A” is typically noted in the “Comments” block.

9.2.7. Each section of the audit (Administrative Practices and Shop/Field Practices) requires an overall score of (3 points). Each subsection of the Administrative Practices section requires a minimum score of (2.9) if the sub-section is applicable. However, any occurrence of (1 point) must be discussed with the chief auditor. A score of (1 point) may be the basis for a major finding.

9.2.8. If there is a pattern of several related minor findings that show a pattern of weakness in a particular area, the cumulative findings may be changed to a “major finding in the event that the auditor, NIICAP personnel, or relevant NIIBS committee considers these minors to be indicative of a serious systemic issue.

## **10. COMMUNICATIONS**

10.1. NIICAP may periodically distribute to participating, owners and accredited contractors, a newsletter including a list of the most common findings during initial and follow up audits.

10.2. NIICAP provides a public web page that lists accredited contractors for the purpose of aiding NIICAP participants in achieving higher performance, peer-to-peer benchmarking, and verification of contractor accreditations.

## APPENDIX A

### TRAINING CONTENT AND PERCENTAGE REQUIREMENTS

Employee Position	Percent Required to be Trained or Certified	Program Meeting Certification Requirement
<u>Supervisor – Foreman</u> , when competent person functions are supported by a separate assigned person present during working hours	100%	<ul style="list-style-type: none"> <li>• QA Certification from the NACE International Institute, SSPC, FROSIO (U.S. Navy NBPI program accepted for Navy ship work).</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• Applicator certification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• NACE International Institute or SSPC PCS (Protective Coating Specialist Certification).</li> </ul>
<u>Supervisor – Foreman</u> , when performing the functions of the competent person for environmental, safety, and health	100%	<ul style="list-style-type: none"> <li>• QA Certification from the NACE International Institute, SSPC, FROSIO (U.S. Navy NBPI program accepted for Navy ship work).</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• Applicator certification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• NACE International Institute or SSPC PCS (Protective Coating Specialist Certification).</li> </ul> <p><u>AND</u></p> <ul style="list-style-type: none"> <li>• All training required for a worker exposed to hazardous substances, health hazards, or safety hazards.</li> <li>• Additional eight (8) hours specialized training covering:               <ul style="list-style-type: none"> <li>- Employer’s safety and health program.</li> <li>- Associated employee training programs.</li> <li>- PPE program.</li> <li>- Spill containment program.</li> <li>- Health hazard monitoring procedures and techniques.</li> </ul> </li> </ul> <p>“Competent person” is defined as one who is capable of identifying existing potential or probable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has the authorization to take prompt corrective measures to eliminate them.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the competent person must be designated by the contractor, and must show a combination of experience and training to effectively perform the position, and have the authority to take prompt corrective action.</p>

Employee Position	Percent Required to be Trained or Certified	Program Meeting Certification Requirement
<u>Competent Person</u>	100%	<ul style="list-style-type: none"> <li>• All training required for a worker exposed to hazardous substances, health hazards, or safety hazards.</li> <li>• Additional eight (8) hours specialized training covering:               <ul style="list-style-type: none"> <li>- Employer's safety and health program.</li> <li>- Associated employee training programs.</li> <li>- PPE program.</li> <li>- Spill containment program.</li> <li>- Health hazard monitoring procedures and techniques.</li> </ul> </li> </ul> <p>“Competent person” is defined as one who is capable of identifying existing potential or probable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and has the authorization to take prompt corrective measures to eliminate them.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the competent person must be designated by the contractor, and must show a combination of experience and training to effectively perform the position, and have the authority to take prompt corrective action.</p>
<u>Trainer of Applicators</u>	100%	Applicator qualification that meets or exceeds ANSI/NACE/SSPC Standard (NACE No. 13).
<u>Trainer for Environmental, Safety and Health Requirements</u>	100%	<ul style="list-style-type: none"> <li>• Qualified to instruct employees about the subject matter that is being presented.</li> <li>• Complete a training program qualifying the instructor to teach, or have academic credentials and instructional experience necessary to teach the subjects.</li> <li>• Instructor shall demonstrate competent instructional skills and knowledge or the applicable subject matter.</li> </ul>
<u>Quality Control Representatives performing data collection to accept or reject work</u>	100%	QA certification from the NACE International Institute, FROSIO, NCCER, SSPC (NBPI program accepted for Navy ship work).
<u>Plural Component Pump Applicator</u>	100%	SSPC C-12 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Plural Component Pump Operator</u>	100%	SSPC C-14 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Airless Pump Applicator</u>	100%	SSPC C-12 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Airless Pump Operator</u>	100%	Contractors train or brief the operator; no documentation required.
<u>Conventional – HVLP Applicator</u>	50%	Contractors train or brief the operator; no documentation required.
<u>Paint Mixer</u>	100%	Contractors train or brief the operator; no documentation required.
<u>Brush and Roll</u>	20%	Contractors train or brief the operator; no documentation required.

Employee Position	Percent Required to be Trained or Certified	Program Meeting Certification Requirement
<u>Abrasive Blasting Nozzle Operator</u>	100%	SSPC C-7 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Blast Equipment Operator</u>	100%	SSPC C-7 or a contractor's program included in a NIICAP AS-3 accreditation.
<u>Power – Hand Tool Operator</u>	20%	Contractors train or brief the operator; no documentation required.
<u>Support Workers</u> with potential exposure to health hazards, or safety hazards	100%	<ul style="list-style-type: none"> <li>• Training equivalent to “OSHA 10.” See specifics in NIICAP Standard AS-2, Appendix B.</li> <li>• Employee right to know.</li> <li>• Safety, health and recognition of other hazards present at the work site.</li> <li>• Work practices to minimize risks from hazards.</li> <li>• Emergency action plan actions <ul style="list-style-type: none"> <li>- At time of employment.</li> <li>- Whenever the employee’s responsibilities or actions change.</li> <li>- Whenever the plan is changed.</li> </ul> </li> <li>• Refresher training annually, eight (8) hours.</li> </ul>
<u>Workers Entering Confined Spaces</u>	100%	Confined space entry prior to exposure to confined spaces.
<u>Employees with Emergency Response Actions</u>	100%	Elements of the emergency response plan and specific assignments.
<u>Qualified Person</u>	100%	<p>Qualified person is a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated his/her ability to solve and resolve problems related to the subject matter, the work, or the project.</p> <p>NOTE: Even if a legal authority does not define specific training protocol, the qualified person must be designated by the employer, and must show a combination of experience and training to effectively perform the position.</p>