Containment and Ventilation: The Coating Inspector’s Role

Answer
Paul Perkins, Maryland State Highway Administration, Baltimore, MD.
This answer is based on what the Maryland State Highway Administration expects of its coating inspectors. The Administration specifies total containment of all removed and spent materials, which include blasting residue, spent blasting media, rust, paint particles, dust, wastewater, and other residue. Generally, the containment system is required to conform to Class 2A Containment with air impenetrable walls and Level 1 emissions as specified in the SSPC-Guide 6 (CON). Class 2P Containment is allowed when minimum surface preparation is specified. Guidelines for preparing the Containment System Plan are listed in the contract documents. Methods for assessing the quantity of emissions, which include air monitoring as well as soil and water testing, are specified in the contract.

The coatings inspector has a responsibility to verify that the contractor’s containment system is constructed according to the plan reviewed and accepted by the Administration. This review and acceptance by the Administration, however, does not relieve the contractor of any responsibility for obtaining the required degree of capture, containment, and collection. If at any time during the execution of the work, the containment system or steel grit recovery system fails to function properly, the coatings inspector has the responsibility to stop work until the containment system has been modified to correct the cause of failure. The coatings inspector must ensure that the ambient air monitoring requirements included in the contract documents and the Plan of Action or Health and Safety Plan developed by the contractor’s industrial hygienist are followed. Failure of the contractor to provide the monitoring data, reports, analysis, and related documentation, within 3 to 5 days, as required by the contract documents (to show that work is in compliance) shall be cause for the inspector to shut down that portion of the work at no cost to the Administration.

The coatings inspector’s evaluation of the containment system is generally visual. A good inspector will assist or make suggestions to ensure the safety of the workers and to correct inefficiencies in work operations. These suggestions by the inspector do not relieve the contractor of its responsibilities. A good coatings inspector can prevent problems and eliminate poor production. The following are some of the responsibilities of an inspector.

• The inspector should observe the air inside the containment system immediately after blasting, and after the contractor’s quality assurance person has checked the work. If the air is not clear, the dust collectors may not be working properly or the area may be too large. Working in a clouded area might indicate poor ventilation and require a check on the worker exposure air monitors outside the blasting hood, and the air flow in the containment area. Monitoring results above the maximum exposure limits of the blast hood or respirator would require an adjustment to the engineering controls or a change in the blast hood or respirator.
• The inspector should look for visual emissions outside the containment system. If there are visual emissions, the inspector should use a stopwatch to check the duration of the emissions and determine if there is more than 5 minutes of emissions in an eight-hour period (Level 1—SSPC Guide 6). Exceeding Level 1 emissions is cause for the inspector to shut down work operations.
• The inspector should look for lead-based paint chips, steel grit, or other abrasive media on the ground or on the top of the water surface.

Question
What are the responsibilities of coating inspectors for activities related to containment and ventilation on lead paint removal projects?

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even when there are no visual emissions. Evidence of paint or abrasive debris indicates a leakage in the containment system. This could be cause for shutdown to allow the contractor time to make adjustments and seal off all leaks.

- The inspector should check for non-visible grit escaping the containment. The inspector can perform this check by walking under the containment system. If grit can be felt in the air, the coatings inspector must again act by checking monitoring results and requiring the contractor to make adjustments and seal off all leaks.

- The inspector should look for holes in the impenetrable tarps, openings, or areas not properly sealed that could allow emissions from the containment system. These areas must then be repaired or sealed by the contractor.

- The inspector should check the efficiency of the contractor’s arrangement of equipment. For instance, dust collectors and the recovery system could be affected by too many bends in the duct system between the equipment and the containment area. Frequently, there are long distances with a change in elevation between the equipment and the containment area. Openings or holes in the ducts could also cause a loss of efficiency or emissions. The coatings inspector should advise the contractor and suggest modifications, if necessary, to improve production and prevent emissions from occurring.

- The inspector should make sure that the contractor cleans the work area, including equipment areas, daily.

- The inspector should look for evidence of structural defects in the containment system. For instance, failures of connections could cause a collapse of the system and jeopardize the safety of the workers and the inspection staff.

- The inspector should also ensure that the contractor’s industrial hygienist periodically checks the air flow rate in the containment system. If this rate is not approximately 100 ft/min (30 m/min) per SSPC-Guide 6 (CON), the equipment and the workers’ personal air monitors need to be checked. Adjustments to the system may be required.

Maryland inspectors include trained State coating inspectors and third party coating inspectors with nationally recognized credentials. These inspectors must not only be knowledgeable in cleaning and painting operations, but must also be familiar with the regulations and SSPC guidelines. In addition, they must have a complete understanding
of the specification to be enforced. The inspector ensures that the work is technically correct and is in compliance with all environmental, safety, and health regulations.

A good inspector must be knowledgeable and know what to look for, when to act, and how to act. The inspector needs to be able to evaluate the seriousness of the situation and make suggestions for the contractor for maintaining an efficient system. The inspector may be able to help the contractor avoid a failure of the system or serious emissions.

Answer
Lloyd Smith, PhD, Corrosion Control Consultants & Labs, Inc., Herndon, VA:
A coating inspector’s function is to witness, verify, and document that work is performed in accordance with the specification. Therefore, it is the specification that will determine the inspector’s responsibilities.

If containment was specified with the aid of SSPC Guide 6 (CON), then those sections of Guide 6 (CON) incorporated into the specification must be witnessed, verified, and documented. This can include verification of the containment enclosure components as well as the ventilation system components.

Guide 6 (CON) also includes methods for assessing the quantity of emissions. An inspector may be responsible for assessing visible emissions. Many of the items require only visual verification (i.e., is the containment built with rigid or flexible materials?). For tasks such as assessing visible emissions or ventilation, training in inspection methods and data interpretation is essential.

Some owners may require plans for the containment system to be submitted before work begins.

The coatings inspector may be responsible for verifying that the containment is built according to these plans.

The best answer to the question, therefore, is that the specification, the pre-job meeting, or both should establish the inspector’s responsibilities.

Answer
John Soebbing, AEC Engineering, Minneapolis, MN:
Prevalent concerns on coatings projects, particularly those involving lead paint removal, involve worker safety and the public welfare. Correspondingly, regulations have been enacted on the local, state, and federal levels for protecting individuals and the environment during such potentially hazardous work activities. Containment and ventilation are 2 aspects of lead paint removal that are directly related to these regulations.

Currently, the responsibilities of the coating inspector related to containment and ventilation for projects of this kind can vary significantly. They differ primarily with preferences of the individual structure owner or the owner’s consultant. These preferences can be influenced by prevailing regulations; the owner’s past experiences; the structure’s importance to daily operations; its physical location; and its proximity to houses, schools, hospitals, childcare facilities, and other properties.

Ultimately, the responsibilities of the coating inspector should be clearly defined within the project specification. Thus, the coating inspector works within...
the scope and authority provided by the specification. Often, the inspector's responsibilities within the project specification vary according to the intent of the inspection task. That is, where the inspection activity serves the interest of the owner (e.g., dry film thickness of an installed coating), the activity would presumably be an enforcement responsibility of the coating inspector. While completing this inspection activity, the inspector would be expected to fully comprehend the item or issue, perform the necessary monitoring with the appropriate instrumentation, and sufficiently document the test results and corresponding observations. As always, each project requires an inspector with the appropriate training and experience.

With the specification setting out the inspector's responsibilities, and with its intent being to protect the potential customers of the owner and their properties as well as the owner's property, monitoring the effectiveness of the containment would likely be a responsibility of the coatings inspector. Inspection activities would likely include performing visual emission assessments, monitoring air sampling units, or both. Alternatively, the inspector may have the responsibility of coordinating the activities of a separate environmental monitoring firm for the air sampling units.

Conversely, where an activity serves the interest of the contractor (e.g., assuring worker safety), assessing ventilation and containment would be considered a responsibility of the contractor. Thus, if worker safety is the primary focus of ventilation, the contractor would be principally responsible for the monitoring and documentation of proper system operation. Oversight of these activities would be the duty of the contractor's competent person. In this case, however, the coating inspector should be familiar with the ventilation system and have the opportunity to review the contractor's data and monitoring methods to assure his or her own safety.

In summation, while the responsibilities of coating inspectors related to containment and ventilation for lead paint removal can vary from project to project, they should be clearly defined within the specifications according to the intent or preferences of the structure owner.

**Answer**

**Phil Farnell,**

**Transocean Coating Inspectors Ltd.,**

**Great Yarmouth, UK:**

In the UK and Europe, since BS 5750 and ISO 9000, Quality Systems, were introduced, the role of the coating inspector has generally changed from that of a supervisory role to an “observe and report” role. Any firm, including painting contractors, that is ISO-accredited must produce its own quality procedures as well as its COSHH (Control of Substances Hazardous to Health) statements for any project the firm is involved in. These COSHH statements recognize that any lead being removed is harmful to health (and the environment) and cannot be ignored; therefore, the contractor must establish ways to protect personnel (and the environment) from the effects of the hazard. These protective measures include the type and design of the containment and ventilation necessary. Any contractor firm employed on lead removal projects will be expected to prove itself competent to work under these hazardous conditions and have adequate method statements in place.

The coatings inspector is not normally a safety officer with special training in lead removal projects; however, he or she should be familiar with the ventilation system and have the opportunity to review the contractor's data and monitoring methods to assure his or her own safety. Should the inspector see any activity considered detrimental to the health of the inspector, or others, he or she should bring this information to the attention of the contractor’s supervisor and the inspector’s client.

In all cases, the coating inspector’s responsibilities should be laid down in writing by the client. This written brief should state the inspector’s role and the limits of the inspector’s responsibility in relation to:

- the contractor’s implementation of health and safety procedures,
- authority to supervise work,
- quality control, and
- reporting structure.

If the inspector is employed directly by the contractor, it may be that the inspector has been trained in lead removal and the safety measures required. In this case, the inspector could be considered the competent person responsible for ensuring that the health and safety criteria to be adopted during the lead removal are adhered to and enforced.

Should the inspector be a third party inspector, working on the facility owner’s behalf, it is the facility owner’s responsibility to ensure through training that the inspector is suitably trained and is competent to carry out his or her role.

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