

## Coatings 101: Condition Assessments

An Overview

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IAM ANUPONG / GETTY IMAGES

*Editor's Note: This article contains excerpts from the author's Inspector's Corner blog on PaintSquare, "Coating Condition Surveys, An Overview: Part 1," which was originally published on Aug. 23, 2017, and has been reviewed and updated for this issue by JPCL staff.*

In order to execute a successful coating condition survey for asset integrity management, it is essential to develop a strategic pre-planning program of what is to be surveyed, and to decide exactly what data to collect. This is essential to the efficiency and cost effectiveness of both baseline surveys and ongoing inspections for coating facility asset management programs.

To put it simply: It is essential to know what is required before initiating a costly coating condition survey.

In this article, we'll summarize what's necessary to carry out a successful coating condition survey, looking at what should be worked out ahead of the survey, what information to look for and what qualifies an inspector for this kind of survey.

## WHO, WHAT, WHEN, WHERE, HOW

There are many factors to consider during the planning stage of any coating condition survey; however, the following are vital in order to execute a successful strategic survey from a fabric maintenance perspective:

1. Pre-determine primarily what areas, zones or safety critical elements (SCE) to survey. (Identify scope.)
2. Determine survey type (i.e., full, partial or SCE-based).
3. Confirm what data is to be collected, how it is to be collected and how it is to be reported.
4. Determine the access available or needed in order to survey the coating system.
5. Confirm the experience of personnel required for surveying.
6. Determine the equipment and resources required in order to execute the survey.
7. Confirm a reasonable time frame for the survey.
8. Collate and gather technical drawings such as piping and instrumentation diagrams (P&IDs), as builds, coating specifications and structural plans.
9. Determine the type of visual standard to be used for the survey for visual comparison.
10. Establish testing methods (i.e., visual, destructive or non-destructive testing).
11. Review historical data (if known or present).

Having historical data is very useful for the pre-planning team and the surveyor. Typically, before any coating condition surveys are conducted, it will be very useful to the project team to gather some history on the plant or equipment to be surveyed. The age of the plant or equipment, previous coating survey reports, previous maintenance or any outstanding issues such as leaks, corrosion, emergency work should be discussed and identified as priority survey areas. It is vital to establish if technical drawings or specifications exist, as these will be extremely useful in conducting the survey and identifying locations.

The above are but a few critical points to take into consideration post-coating survey; however, it is clear from the above factors that a great deal of pre-planning is required in order to determine the correct strategy to implement for the coating condition survey.

To simplify the above, it is essential to determine what coating condition survey data points will help the asset manager in managing and executing a strategic and successful future fabric maintenance program, as ultimately the data collated will be used for maintenance either reliability-based, safety critical-based or general based.

A full comprehensive coating condition survey is often carried out primarily to:

- Ascertain the actual condition of the coating system which is in place;
- Determine any premature failure areas;
- Confirm the suitability of the original installed coating system;
- Confirm that original coating selections are correct for service and process environments and are performing;
- Evaluate the physical aspects of installed coating systems or to ensure that the coating has been applied as per specification requirements; and
- Provide an ability tool to preempt corrosion failure.

## ABOUT THE SURVEYOR

There has always been great interest in regard to the experience and qualifications required for the coating condition surveyor. Very often, companies request an AMPP Level 3 or ICorr Level 3 coating or painting inspector as a minimum education requirement. However, having extensive inspection experience does not necessarily make one a good coating condition surveyor.

It is essential that the coating surveyor have considerable experience in the coatings industry, which is usually attained by coating inspection qualifications coupled with extensive field experience. We have to remember that the surveyor must be able to develop comprehensive field coating condition reports, which will include recommendations and will be used in future maintenance contracts. This means that the surveyor must, at minimum, be able to:

- Follow technical drawings, P&IDS, specifications, as well as builds and plot plans;
- Evaluate surface areas and identify survey zones;
- Evaluate corrosion breakdown and coating breakdown;

- Identify coating failure types;
- Recommend remedial actions;
- Report accurately and precisely collating comprehensive data;
- Use sensitive inspection equipment usually not used for normal coating inspection; and
- Liaise with senior personnel such as offshore installation managers, plant managers, fabric maintenance coordinators and asset integrity managers.

He or she must also be able to read structural drawings, P&IDs and plant plot plans as well as estimate surface areas and break down percentages. These are not factors usually taught in a protective coating inspection course. What is clear is that the coating condition surveyor should have the necessary experience to be able to conduct the tests, write detailed, comprehensive and unbiased reports and make recommendations that will be required for future coating operations.

## ABOUT THE AUTHOR



**Lee Wilson**, a longtime coatings inspector and consultant, sadly passed away suddenly at the end of last year. Wilson had a wide range of experience with coating inspection techniques and methods, beginning when he was a blaster and coating applicator in the U.K., before moving into supervision and inspection. He was keen to pass on his experience to others in the protective coatings industry, and has published two editions of a book for inspectors, *The Paint Inspector's Field Guide*. He was recognized as an expert on fabric maintenance and corrosion control in the oil and gas industry, and recently was becoming involved in the offshore wind industry. He also authored several technical articles in JPCL and produced a number of blogs for *PaintSquare*. Technology Publishing Company sends its deepest condolences to Wilson's family and industry colleagues.