

# When and How to Template An RCM Analysis

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RCM Blitz™ is a Reliability Tool designed to develop a complete maintenance strategy for a process or piece of equipment. When implemented this maintenance strategy will help to ensure the inherent designed reliability of any process or asset. Performing an RCM analysis takes an investment in time and resources to complete so I always advise my clients to follow the RCM Blitz™ process to ensure the equipment they have selected to analyze will show a return on their investment dollars.

Typically while performing the first or second analysis in a given company I am questioned about the feasibility of copying the information from one analysis and pasting it into another. “This will save both time and money and should provide an equal level of reliability across all of our assets.”

This idea of developing a maintenance strategy for one asset and applying it to similar assets seems very attractive, but it’s also often the first crucial mistake companies make when trying to start an RCM program. Common sense leads them to assume a pump is a pump, a motor is a motor and pipe is pipe. If we expect our pumps, motors and pipes to perform the similar duties, they should intern deliver the similar levels of reliability. In the rush to make the RCM cycle faster they forget to consider just how different these identical components can be and in the end discover the maintenance strategy that works well for one asset will not work at all for another. Worse than this, they might also believe that it was the RCM process that failed and tell others “we tried RCM and it didn’t work”!

## **Can you ever template information from one RCM analysis and use it in another?**

Yes, it can be done and it can save both time and money, but there are several things that need to be considered before you copy the maintenance strategy from one analysis and past it into another. I like to say Reliability-Centered Maintenance is relatively simple process with several subtle complexities that lulls people in to making common mistakes.

In order to template information from one RCM analysis to another, you need to follow and meet all of these guidelines:

- 1. The assets you intend to template must be identical in make, manufacture, material and how they are operated.**

**Example:**

Your company is performing an RCM analysis on a cooling water pump. The company also has three similar cooling water systems at this plant site. Before you template the information from the first analysis to the other systems, make sure that all three pumps are the same make, manufacturer, model and material. This is important, different brands, types and materials may have different failure modes and different rates of failure. On top of this the operating context or operating requirements for the systems may also be different and may also result in differing failure modes and failure rates. Are the pumps required to pump identical rates of cooling water at identical pressures? Is the water in one system treated with a chemical that's different from the others? Take some time to look at requirements of all three systems and try to determine where each is different, and what failures may result from these differences.

- 2. Assets where you intend to template information from one analysis to another should be identical in operating environment.**

**Example:**

Using the cooling water systems we described above, imagine the plant is located in Minnesota that one of the systems is outside while the other two are inside. Knowing this, might we have some different failure modes that require different levels of maintenance? The Operating Environment of our assets also includes the age of the assets and the condition of surrounding or supporting assets. While our first system is located outside, it has only been in service for five years, the pump itself is mounted on a manufactures base, the pump base is grouted and supported by large concrete foundation. The pump on our third system has been in service for twelve years and is bolted to the building floor. What are the chances that these two identical pumps have identical failure modes and failure rates? If I performed identical levels of maintenance on these pumps would they deliver identical levels of reliability? Of course not!

- 3. If you intend to template information from one RCM analysis to another, remember to consider the specific failure modes for each location.**

**Example:**

Getting to the specific cause of failure is a major key in performing successful RCM analyses. There is a common tendency when starting Reliability-Centered Maintenance to begin writing failure modes at specific cause level and then gradually move to higher levels of failure. This always results in an ineffective "one size fits all" maintenance strategy. This does not work if you are looking to achieve the inherent designed level of reliability for your assets.

It never has and it never will. Going back to the cooling tower pumps, if we started our company RCM program looking at the first outdoor system and discussed this pumps failures at specific cause level, the product of our RCM analysis would be a complete maintenance strategy that address the specific failure modes of the asset. The implemented maintenance strategy from this RCM analysis would ensure a high level of reliability for this asset. Now, to save some money we try to apply this same maintenance strategy to our second or third system. Would this maintenance strategy now deliver the same level of reliability for these assets? Not a chance! The maintenance strategy developed in the first analysis most likely would never address some of the specific failure modes that directly affect the reliability of the other systems.

When attempting to template RCM information between like assets you should **ALWAYS** remember to consider the specific failure modes of each asset no matter how much alike they first appear. The best way to do this is:

- Make sure you are using a cross-functional RCM team that is made up of experts who work with and are responsible for the maintenance of each asset. They are the only people who will know the specific causes of failure for your assets.
- As a general rule it should take you 1/5 the time to complete a good RCM template. This includes gathering information and history on each system, and performing the analysis.
- Remember, there may be some failures and tasks that applied to the first asset that may not apply to your next. It is also possible to perform unnecessary maintenance.
- Common specific cause failure mode lists can be helpful to ensure all likely failures are considered.

### **A Final Note**

Reliability-Centered Maintenance is an outstanding reliability tool with a proven record of improving, achieving, and maintaining equipment reliability. The process works best when you take the time to properly train people how to facilitate the process, and where to apply the process to achieve a return on your investment.

Should you have any questions on when and how to template RCM, feel free to contact Reliability Solutions, Inc. at 585-349-7245.