



# 12 THINGS TO DO AFTER DISCOVERING MECHANICAL FAILURE



## 1 CALL IN THE FAILURE ANALYSTS EARLY

Irreversible damage can occur to the scene of a failure if things aren't handled correctly. Getting a failure analyst involved from the beginning will help preserve the scene and ensure a more accurate analysis of what happened.

## 2 TAKE PLENTY OF PHOTOS

Even if you don't have a failure analyst involved yet, it is important to document the failure site before things get moved around. Capture as many high-quality pictures of the scene and surrounding area as you can.

## 3 COLLECT ANY RELEVANT FLUIDS, DEPOSITS, OR RUST

Collecting evidence from the scene, like fluids or metal debris, and preserving them in a clean, dry container could prove essential in determining what caused the failure.

## 4 PROTECT FROM MOISTURE

It is important to prevent excess moisture from causing further damage to the evidence you've collected. Be sure to store your sample in a dry place to prevent corrosion from occurring.

## 5 DO NOT CLEAN ANYTHING

One of the worst things you can do is to clean a sample that you may want analyzed. This could irreversibly destroy fine fracture features needed for analysis.

## 6 DON'T TOUCH THE FRACTURED SURFACES

Touching a fractured surface leaves behind organic and inorganic residue, hair and fibers, and grease, all of which can really hamper the investigation. So just don't do it!

## 7 PULL TOGETHER AMPLE TECHNICAL DATA

Background information is needed to help understand the failed component and what its life was like. If possible, collect things such as normal operating conditions, service history, construction details, P&IDs, etc.

## 8 TALK TO EYEWITNESSES

Talking to witnesses is a key step in working out what happened. For example, finding out the stationary equipment actually "wobbles like a flagpole in a hurricane" could indicate a vibration issue, which can cause fatigue.

## 9 CUT IT DOWN TO A MANAGEABLE SIZE

Always check to see what size sample the lab would prefer for analysis. The lab may also have limitations on what they can safely handle for analysis.

## 10 PROTECT THE FRACTURED SAMPLE DURING SHIPPING

It's best to wrap the part in aluminum foil, as it won't stick to the fracture or contaminate the sample surface like plastic film or paper. Then cover the part in bubble wrap and pack in a box with peanuts or strap to a pallet.

## 11 SEND AN EXEMPLAR IF YOU HAVE ONE

It is usually a good idea to include an unaffected component or pipe section for comparison purposes to the failed sample.

## 12 TREAT THE FAILURE ANALYSTS LIKE A MEMBER OF YOUR TEAM

Too often, people keep the failure analyst in the dark, which can slow down the examination and root cause analysis process. Invite them to visit the site, if possible, and treat them as a member of your team.

Reference:  
Neil Burns. "12 Things to do After  
Discovering Mechanical Failure."  
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