

When Objects Break

Protecting the Evidence

BY ROB SPARLING



In order to settle claims or pursue subrogation opportunities, insurance professionals need to know why and how failures have occurred. As such, it is important to protect the information associated with the failure.

The forensic investigators who help insurance professionals determine the cause of failures, need as much information as possible to help conclusively determine causation. Due to time constraints or the nature of the failure, forensic investigators may not be able to attend the site of the failure to collect evidence and document the conditions surrounding the failure. This responsibility then falls to the insurance professional.

Documenting failure conditions

It is important when gathering evidence to collect as much information as possible regarding the broader context of the failure. It is often the smallest details that can lead the forensic investigator to a determination of cause. When documenting the conditions surrounding a failure one should look for:

Physical location — Often the best way to help the forensic investigator is to take lots of pictures. Pictures can provide information that may not be immediately obvious to the photographer. For example, the extremely black soil next to a broken water main could indicate the presence of iron sulphide, a mineral associated with bacterial corrosion. The picture of the failure location would help the forensic investigator differentiate between chemical corrosion and bacterial corrosion. If taking pictures is not possible, document what you see on paper with sketches and a written description.

Environment — The physical environment where the object failed can be very important in determining the cause of the failure. An example would be determining whether a leaky home heating oil tank was located in direct sunlight or in the shade. Large temperature swings caused by a home heating oil tank spending part of the day in direct sunlight and cooling off at night can increase the rate of water condensation in the tank, leading to internal corrosion subsequent leaking. Where possible, it is advisable to document whether the failure location was wet, dry, dusty, clean, windy or exposed to extreme temperature swings, etc.

Witnesses — Witnesses can provide timelines and sequences of events which may be important in determining the cause of the failure. If someone was present at the time of

the failure, document what they saw, heard, smelled, etc. Visual observations such as smoke, steam and the direction of flying debris can all be important in determining causation. Sounds and smells may also be relevant to the failure investigation. The hissing of a steam hose before it burst could indicate a pre-existing leak in the inner layers of the hose.

Documentation and history — Maintenance records, drawings, purchasing records, warranties, manuals and old photographs, etc. can all help in determining why something failed. Collect these documents and forward them to the forensic investigator along with the failed object.

Physical evidence

Improper gathering, handling, storage and transportation of evidence can lead to important information being lost.

When gathering evidence and protecting failed objects from damage, keep in mind:

Evidence removal — If something has to be taken apart or cut in order to remove the evidence, document how the material was removed. Take pictures before, during and after removal and document what tools were used. This will assist in distinguishing between damage that occurred as a result of the failure and damage that occurred as a result of evidence removal.

Gather associated evidence — Water from a leaking pipe may contain chemicals or microbes that led to the leak. Oil from a failed engine may have metal filings in it; soil from the area around a burst pipe may have materials which led to the corrosion of the pipe. Find suitable clean containers and keep a sample of any materials that may be associated with the failure.

Contamination by touch — Environmental attack and corrosion are often caused or accelerated by chemical compounds. Hands are covered in oils, salt, grease and dust, which can all be transferred to the failure surface. This may lead to incorrect conclusions and determinations of cause. Wear gloves to prevent inadvertent contamination and store the material in clean containers.

Leave the dirt — Don't clean it. The dirt may be important. Often the environment in which something failed plays an important role in why the failure occurred.

Fracture surfaces — Never put fracture surfaces back together; doing so can damage the surfaces making identification of the cause of failure difficult.

Suitable containers — If the object being collected is small, Ziploc bags make excellent storage containers for evidence. If Ziploc bags are too small or not available, new plastic boxes or food storage containers are the next best choice. Plastic wrap or bubble wrap works if suitable containers are not available. Always wrap the object well before putting it into a cardboard box. Capture liquids in clean appropriate bottles, jars, or cans. Seek assistance when handling hazardous or flammable chemicals.

Protect evidence from water damage — Water can lead to corrosion, moulding or chemical changes in material. Whenever possible, store failed objects in dry sealed containers or bags to prevent damage from occurring. If a failed object is wet, collect some of the water in a jar or Ziploc bag and then allow the object to dry before storing it in a dry container or bag.

Labelling the evidence — Mark on the container holding the evidence where it was gathered, who gathered it and when it was gathered. This will help prevent the evidence from being lost.

Extreme temperatures — Freezing and thawing conditions can damage materials containing water. High temperatures can melt waxes or plastics. It is always best to store evidence in a cool (10°C to 25°C) area.

Protect plastics from UV light — Many plastics, glues, rubbers and paints are sensitive to ultraviolet (UV) light. The fluorescent lights in office buildings produce a significant

amount of UV light. Materials should be stored in boxes or bags which prevent UV light from degrading them.

General handling damage — A failed wire that is subsequently kinked or a hose that is bent to the point where it does not spring back to its original shape during inspection, are both examples of handling damage. It is important that forensic investigators do not mistakenly interpret damage caused during handling as contributing factors to the failure.

Chain of custody — Make sure to document who removed the evidence, and all parties that took custody of the evidence. Although not commonly an issue, chain of custody may be important in litigation.

Summary

The loss or failure to gather even the smallest details surrounding a failure can compromise an investigation and mean the difference between finding a cause and being left without the answer. For insurance professionals, this can mean the difference between settling a claim quickly and not having enough information to determine how to settle the claim. It may also be the difference between pursuing or abandoning subrogation opportunities. That being said, always ensure when gathering evidence to document as much as possible and handle the evidence with care. 🍁

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