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Forensic Engineering & Consulting

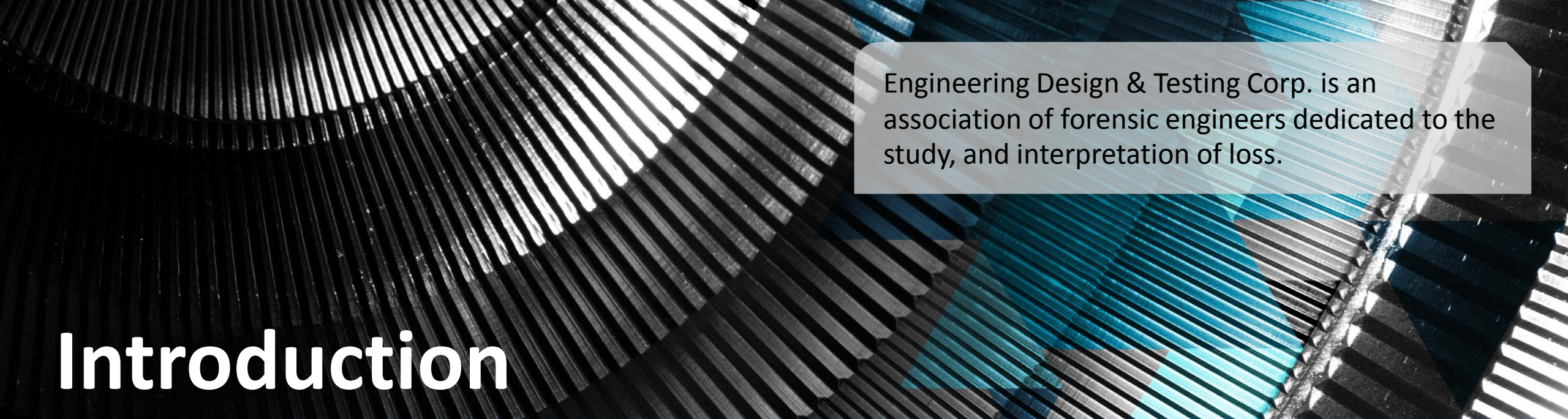
Engineering Design & Testing Corp. is an association of forensic engineers dedicated to the study, and interpretation of loss.



How to Ask For and Get What You Need From a Forensic Engineer

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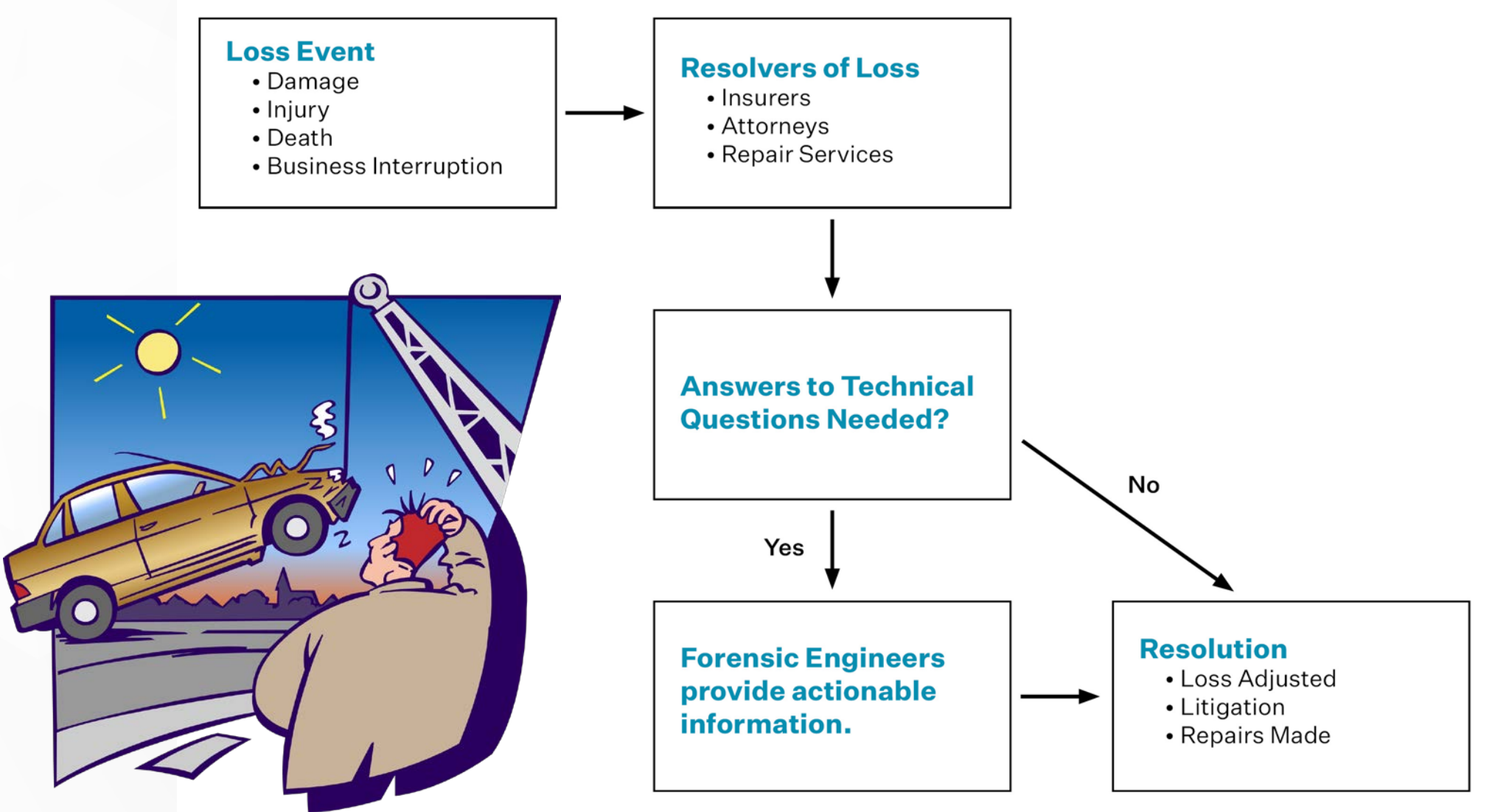
A close-up photograph of a gear with a blue-tinted section. The gear is made of metal and has a complex, multi-toothed design. The blue tint is applied to a specific section of the gear, highlighting its intricate details. The background is dark, making the metallic surfaces stand out.

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Introduction

- The Loss Response Process
- What Forensic Engineers Provide and Do Not Provide
- Determination of Cause Method
- Some Scenarios
- Working with a Forensic Engineer
- Conclusions

The Loss Resolution Process



Forensic Engineers Provide Actionable Information:

- Documentation of the loss
- Objective opinion regarding loss
- Clear verbal and written communication of loss facts and opinion
- Expert testimony at deposition or trial
- Advocacy for the truth
- See essay, “Engineering a Force for Good”

Forensic Engineers Do Not Provide:

- Coverage recommendations/decisions
- Advocacy for a particular party

Establishing What Happened

- **Figuring Out the Physical Circumstances That Caused a loss/injury**
- **Just the Facts – Analysis, Examination, and Measurement**
- **Physical Objects are Neither Reasonable nor Unreasonable**



Establishing Why the Loss Happened

- **Figuring Out Whose Actions Caused the Loss**
- **A Lack of Reasonableness is Required to Assert Responsibility**
- **Hazard May or May Not Be Anticipated Prior to Loss**



“Reasonable Person” Standard

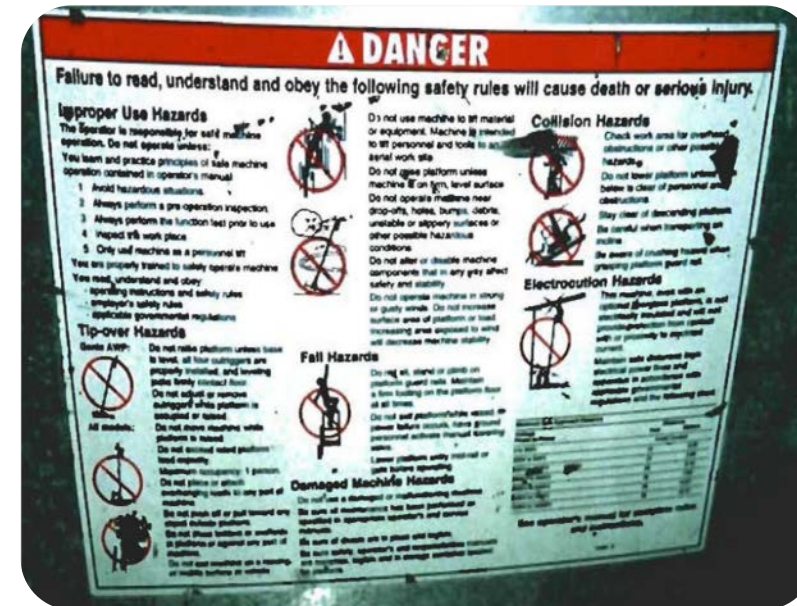
- The Hand Test: Understanding the Expectations of the “Reasonable Person”
- A Person is Expected to Take the Steps that a “Reasonable Person” Would Take to Control a Risk
- United States vs. Carrol Towing
- T.J. Hooper vs. Northern Barge Corp.



Definition of Defect

- Physical Features of an Object May Be Called Defects
 - Helpful in explaining what happened
- An Identified Lack of Reasonableness May Point to a Defect
 - Helpful in explaining why

- Hazard
- Risk
- Controlled Hazard
- Defect



Types of Causes

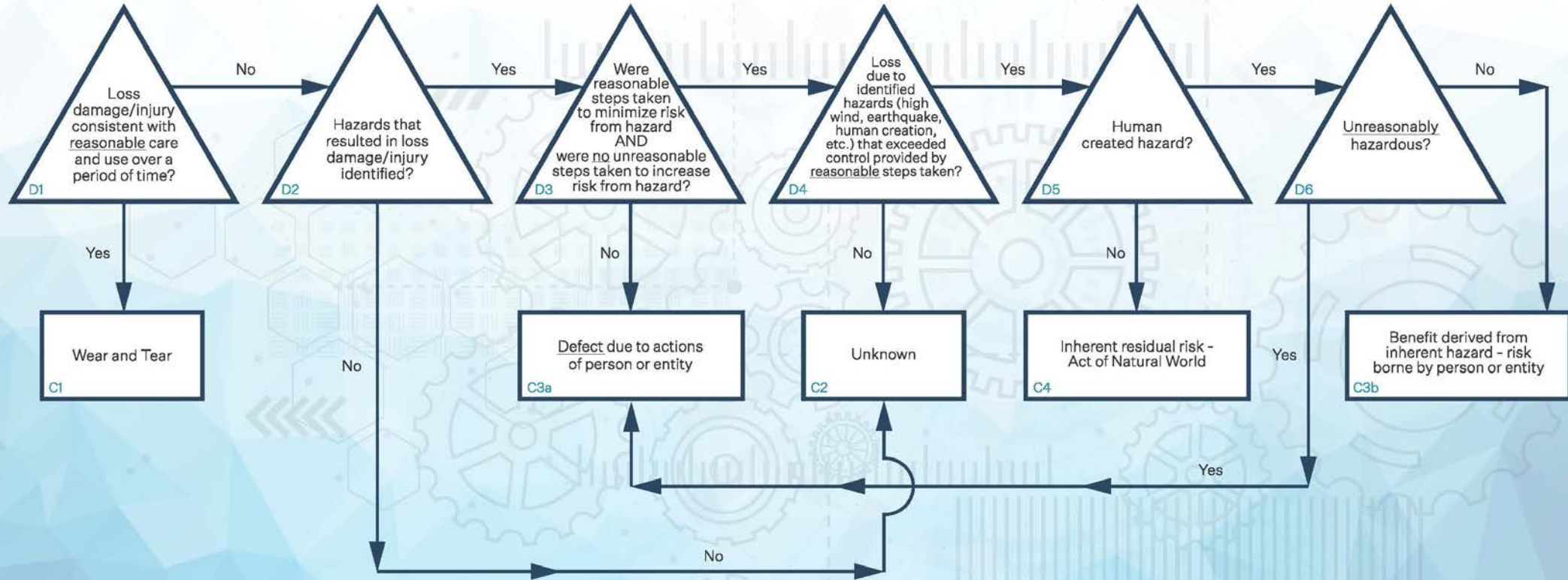
➤ **Types of Causes:**

- **Wear and Tear**
- **Act of Nature**
- **Unknown**
- **Actions of a Person or Entity**
 - **With defect**
 - **Without defect**



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DETERMINATION OF CAUSE METHOD



Scientific method utilized throughout- inductive, deductive, and abductive reasoning applied as appropriate

Hypothesis testing done by analysis, modeling, thought experiment, or physical experiment as appropriate.

Source:
 "Engineering Analysis of Failure: A Determination of Cause Method"
 Authors: Mark D. Russell and Tim A. Jur
 Journal of Failure Analysis and Prevention
 Available for download here: <https://link.springer.com/article/10.1007/s11668-016-0224-9>
 DOI: 10.1007/s11668-016-0224-9

Scenario - Coverage Decision Needed

- Adjuster needs to know what happened to determine coverage
- Adjuster will interpret policy
- May provide guidance as to question at hand

Forensic Engineers:

- Establish circumstances resulting in loss to determine what happened

Example:

- Alleged hail damage to roof

Scenario - Establish Liability

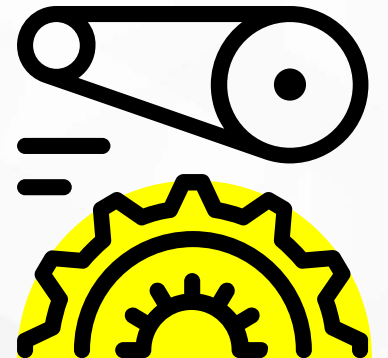
- Adjuster needs to know what happened to result in loss
- Adjuster needs to know why loss happened

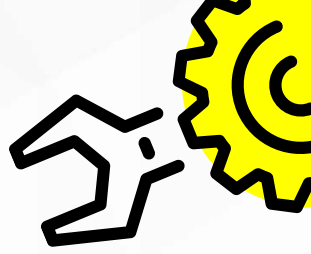
Forensic Engineers:

- Determine what happened to result in loss
- Determine cause of loss to establish why loss happened
 - *Due to actions of person or entity – liability may be established*
 - *Due to wear and tear, act of nature, or unknown – no liability anticipated*

Example:

- Machinery breakdown





Scenario – **Scope of Damage**

- Need to know what damage is associated with loss
- May also need to know needed repairs

Forensic Engineers:

- Document and segregate loss-related damage from non-loss related damage
- May also provide repair recommendations

Example:

- Wind vs. water damage segregation

Scenario – Value of Loss

- Adjuster needs to know costs to address loss-related damage
- Adjuster may also need options to mitigate length of business interruption

Forensic Engineers:

- Estimate or solicit firm quotes for repair/replacement in response to loss-related damage
- May also provide consultation regarding mitigation of business interruption

Example:

- Cost of repair vs. replace for wind-damaged building



Scenario – Litigation Support for Coverage Dispute

- May need to know what happened to result in loss; covered peril? or
- May need to know why loss happened; party responsible?

Forensic Engineers:

- Determine what happened to result in loss
- Determine cause of loss to establish why loss happened
 - *Due to actions of person or entity – liability may be established*
 - *Due to wear and tear, act of nature, or unknown – no liability anticipated*

Example:

- Manufacturing equipment damage due to wear & tear, defective maintenance or mis-use

Scenario – Litigation Support for Plaintiff or Subrogation

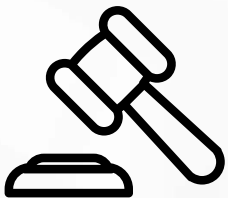
- Need to know what happened to result in loss
- Need to know why loss happened; party responsible?

Forensic Engineers:

- Determine what happened to result in loss
- Determine cause of loss to establish why loss happened
 - *Due to actions of person or entity – liability may be established*
 - *Due to wear and tear, act of nature, or unknown – no liability anticipated*

Example:

- Injury to worker due to product defect or mis-use?
- If product defect; foreseeable or not foreseeable?



Scenario – Litigation Support for Defense or Subrogation Defense



- Need to know what happened to result in loss
- Need to know why loss happened; party responsible?

Forensic Engineers:

- Determine what happened to result in loss
- Determine cause of loss to establish why loss happened
 - *Due to actions of person or entity – liability may be established*
 - *Due to wear and tear, act of nature, or unknown – no liability anticipated*

Example:

- Vehicle fire due to product defect or field modification?
- If product defect, foreseeable or not foreseeable?



Scenario – Litigation Support Consulting Expert

- Attorney needs technical consultation to assist with their advocacy for their client
- May need independent review of other, testifying experts

Forensic Engineers:

- Any of previous types of investigation may apply
- May transition from consulting expert to testifying expert

KINDS OF ACTIONABLE INFORMATION

- **What happened?**
 - Circumstances resulting in loss
- **Scope of damage**
- **Value of loss**
- **Why loss happened?**
 - Determine responsibility and cause of loss.



Communication of Actionable Information

- **Verbal report**
- **Photo study**
- **Fact summary**
 - Work done, observations, photos
- **Report**
 - Short form, long form, Rule 26
 - Stand-alone clarity is key
- **Testimony**
 - Deposition or trial
 - Ability to explain opinion to lay audience is key

Communication with Initial Engagement:

Discuss with the Forensic Engineer What is Needed

What kind of answers and how to transmit answers:

- Scope of work
- Type of report

Timing needs:

- Initial response
- Anticipated costs
- Examination of site or artifacts
- Subsequent investigation steps and timing
- Report completion
- Scheduling of joint exam(s)
- Litigation support
 - ✓ Deposition
 - ✓ Trial
 - ✓ Consultation/review of other expert's work

Communication with Initial Engagement

- Scope of Investigation
- Necessary timing
- Estimated fees
- Expectation for communication



Communication During the Engagement

- Progress & cost of work updates
- Significant developments
- Verbal report of findings
- Photo-study
- Summary of findings without opinions
- Report with opinions
- Rebuttal Report
- Invoices





Conclusions:

- Know your role; play your position
- Set clear expectations
- Open communication; minimize surprises
- Look for clear reports; both verbal and written
- Why we do what we do

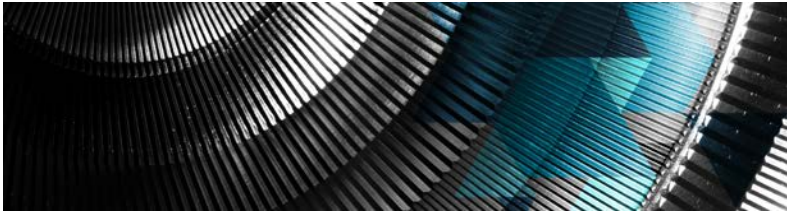


Questions?



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*Thank
you*