



California Coalition on
22ND Workers' Compensation
ANNUAL CONFERENCE
LEGISLATIVE & EDUCATIONAL FORUM

RESPECTING THE ROOTS

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July 9, 2026

A collage of industrial accident-related items. In the foreground, a yellow hard hat is cracked and broken. Next to it is a clipboard with a checklist, a pair of safety glasses, and a pair of work gloves. A wrench lies on the ground. In the background, there is a large gear, a warning sign with an exclamation mark, and a worker in a hard hat and safety vest. A fire is visible in the background, and a bottle of liquid is tipped over.

What are the causes of incidents and injuries?

Let's challenge the way we think about incident investigations and incident culture!



Have you ever heard of Bud Holland?

Bud Holland

During a May 19, 1991, Holland was the command pilot of a B-52 aerial demonstration flight. During the demonstration, Holland's aircraft violated several safety regulations, including:

- Exceeding bank and pitch limits
- Flying directly over the air show spectators
- Violating altitude restrictions.

The base and wing commander along with his staff observed the demonstration but apparently took no action.

Bud Holland

On July 12, 1991, During both the practice and the actual flyover, Holland's aircraft flew at altitudes below 100 feet, well below the established minimum altitude, flew steeply banked turns, and exceeded pitch angle limits.

After witnessing the flyover, his commander and deputy commander verbally reprimanded Holland but took no formal action.

And on and on...

- May 17, 1992... warned Holland that if he violated any more safety regulations, he would be grounded
- August 8, 1993... both [his commanders] witnessed the demonstration but neither took any action
- March 10, 1994... and gave him a verbal reprimand and warning not to repeat the behavior, but refused to take him off flying duty.
- June 1994... [his commander] witnessed this but took no action.

Flight of June 24, 1994

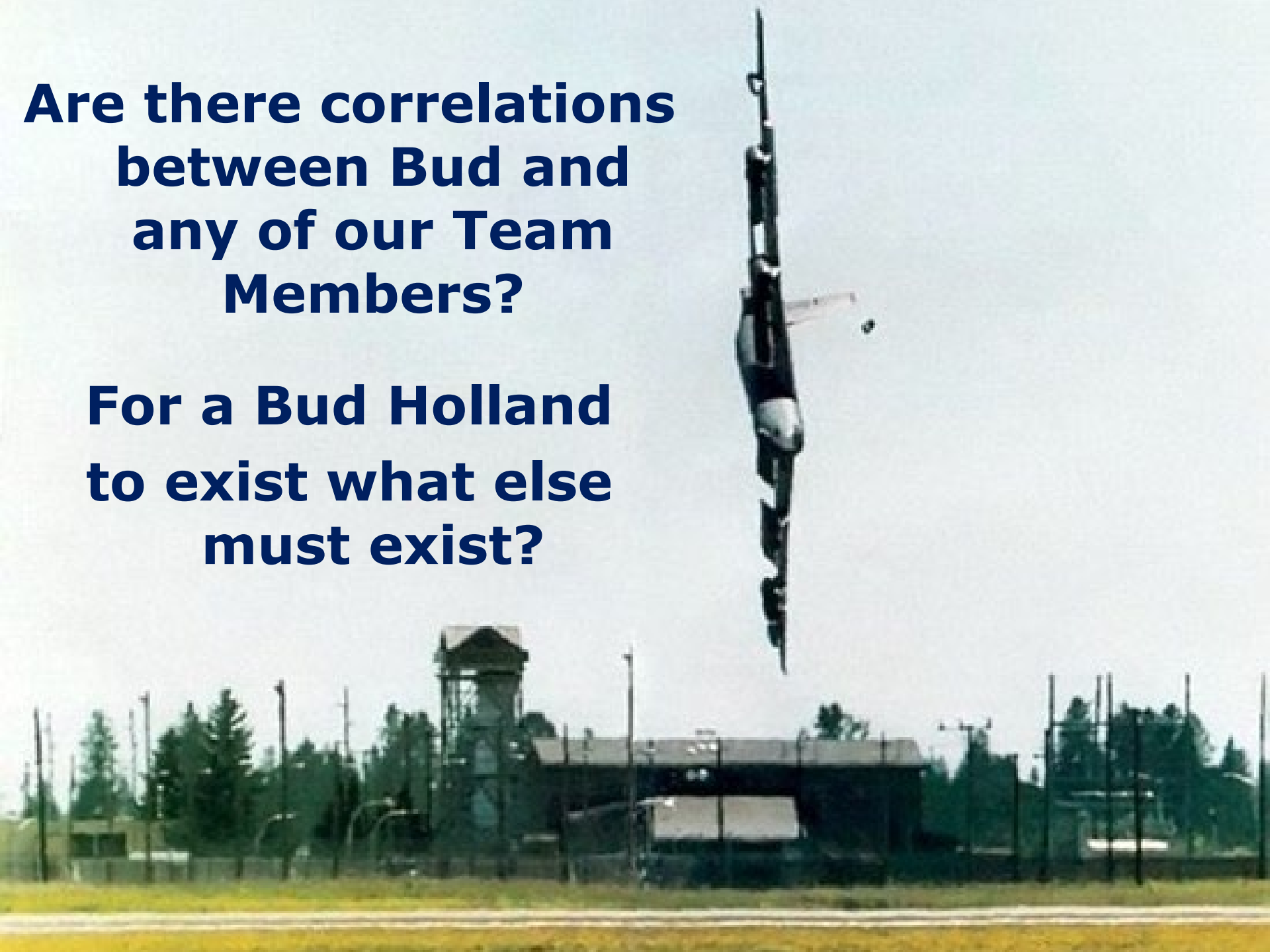
The flight was also the WSO's "fini flight" – His relatives, friends and coworkers, were standing by to douse him with water.

The copilot's wife and two youngest sons watched the flight from the backyard of the copilot's living quarters, located nearby

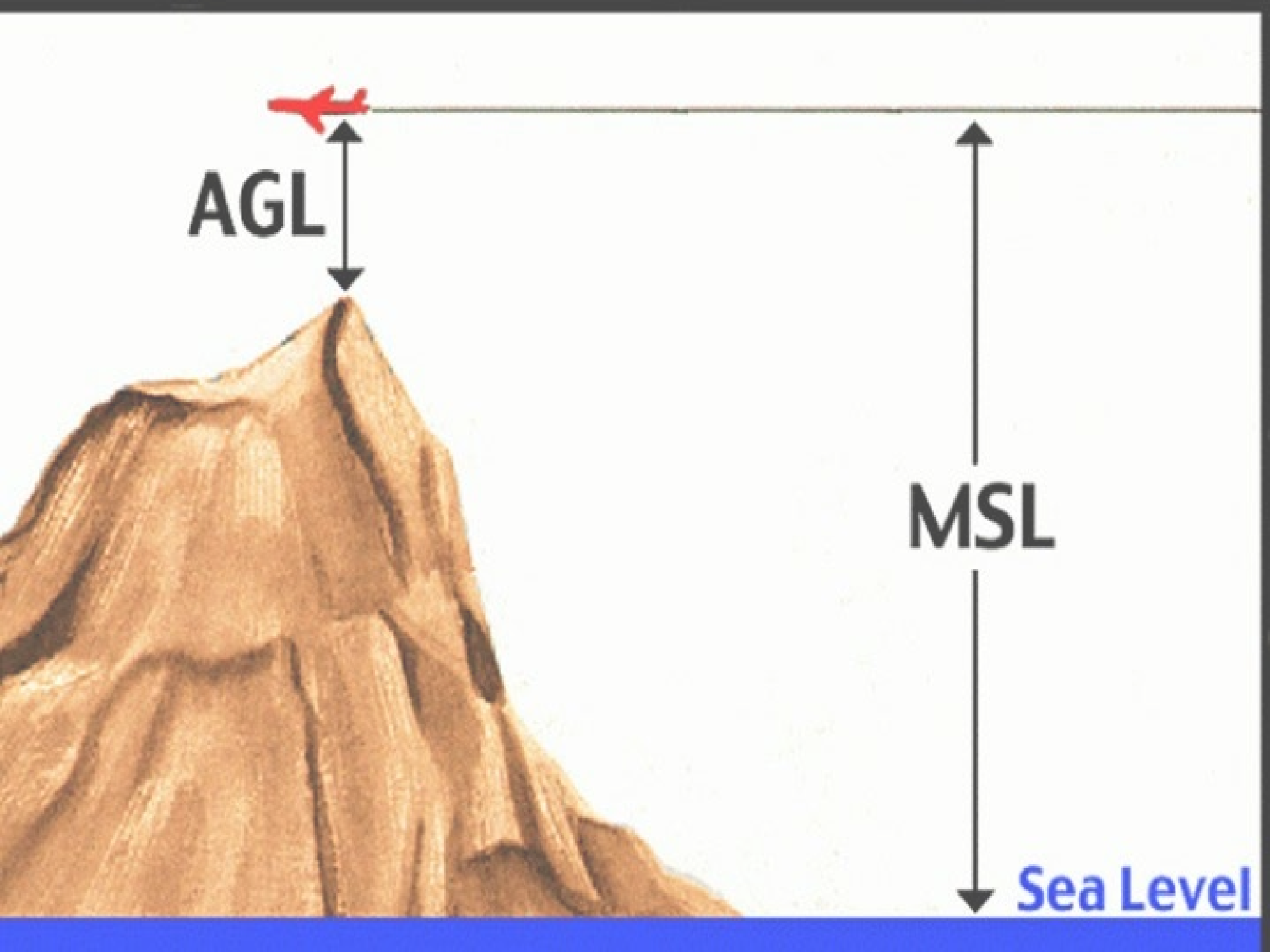


**Are there correlations
between Bud and
any of our Team
Members?**

**For a Bud Holland
to exist what else
must exist?**







AGL

MSL

Sea Level

Where did he crash?



Was this crash an
organizational surprise?



When does a
“SURPRISE” become
a “PREDICTABLE
SURPRISE”?

**CNN
LIVE**

Kennedy Space Center



**CNN
LIVE**

Kennedy Space Center



Flight 25 of the shuttle program. The Challenger Mission



6 Months Prior...

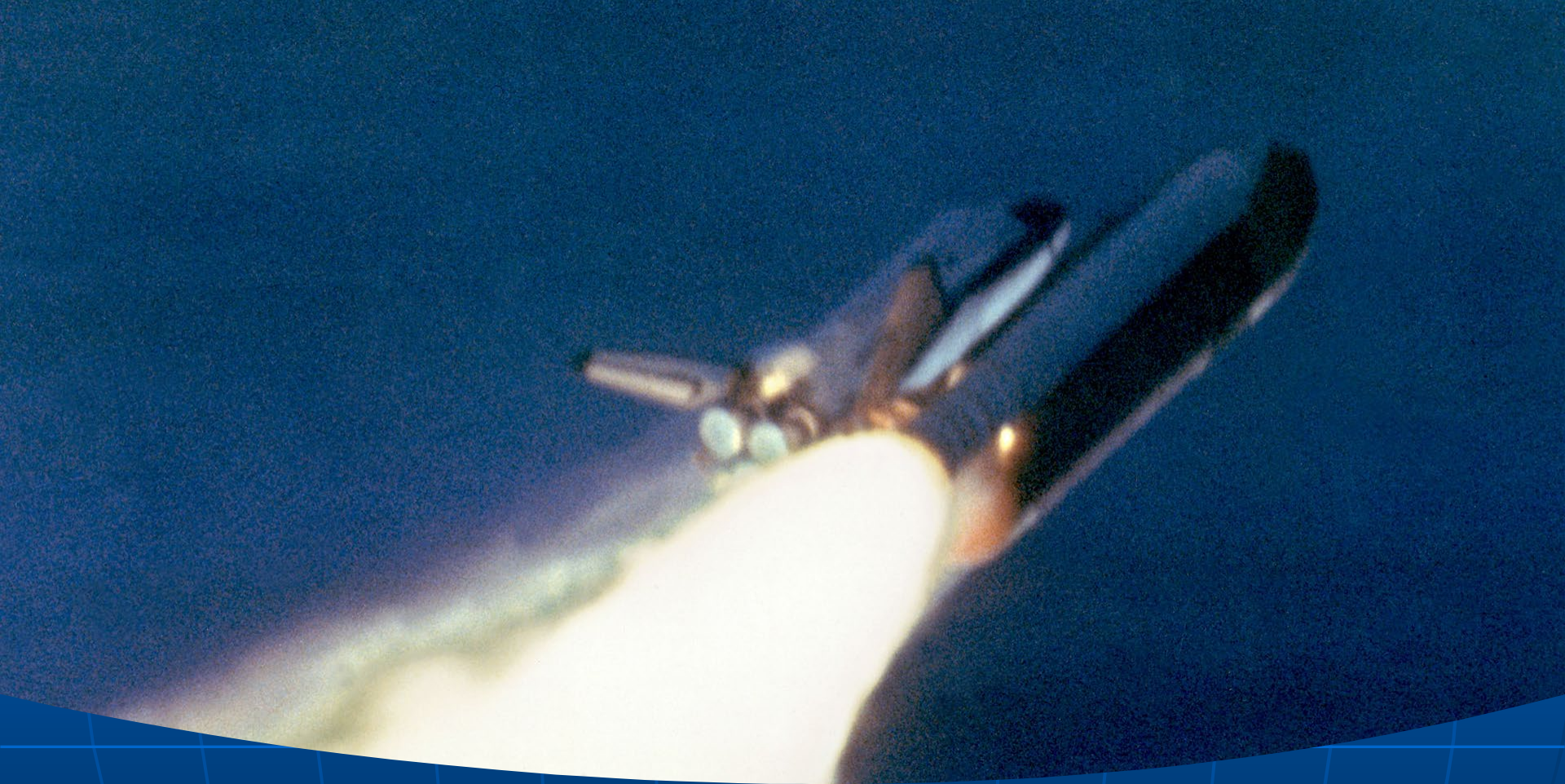
It is my honest and very real fear that if we do not take immediate action to dedicate a team to solve the problem, with the field joint having the number one priority, then we stand in jeopardy of losing a flight along with all the launch pad facilities.

Robert Boisjoly

What
happened?

Failure of the O-Ring





Fire can be seen in contact with the booster structure



And we were all surprised!

July of
1985

It is my honest and very real fear that if we do not take immediate action to dedicate a team to solve the problem, with the field jointly having the number one priority, then we stand in jeopardy of losing a flight along with all the launch pad facilities.

Robert Boisjoly



What went
wrong culturally?



The boosters were reuseable. After each mission they were recovered, taken apart, inspected, refurbished and put back into service.

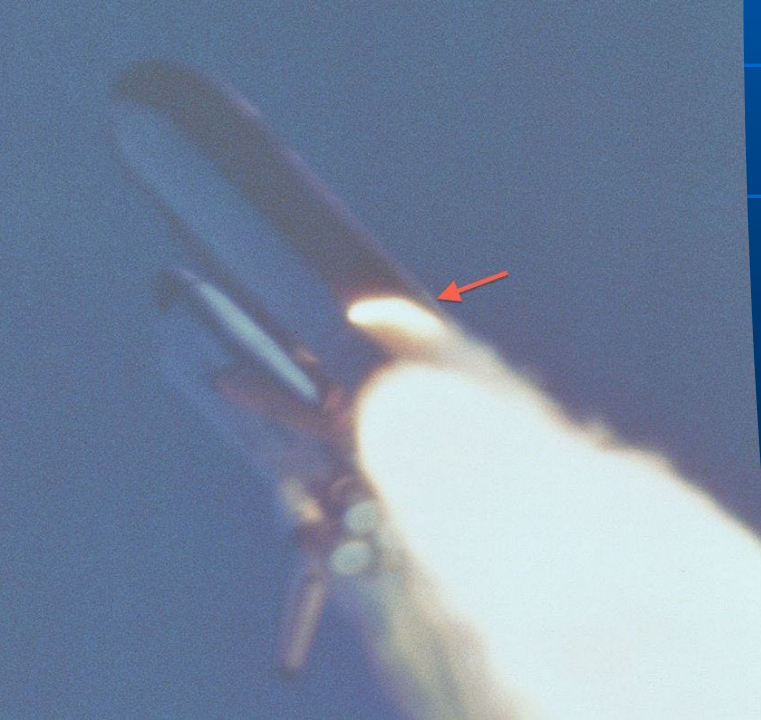
MISSION CRITICAL

Long before that first mission a standard of performance labeled a potential O-Ring failure a “Level 1 Criticality” concern.

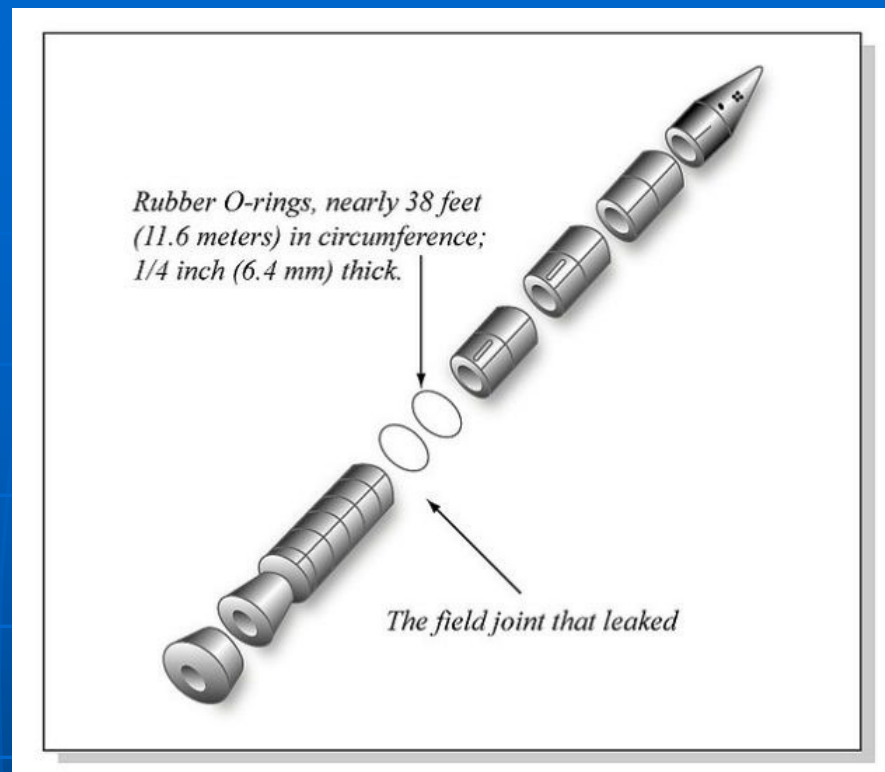


Level 1 Criticality
Means:

Loss of Crew and
Vehicle



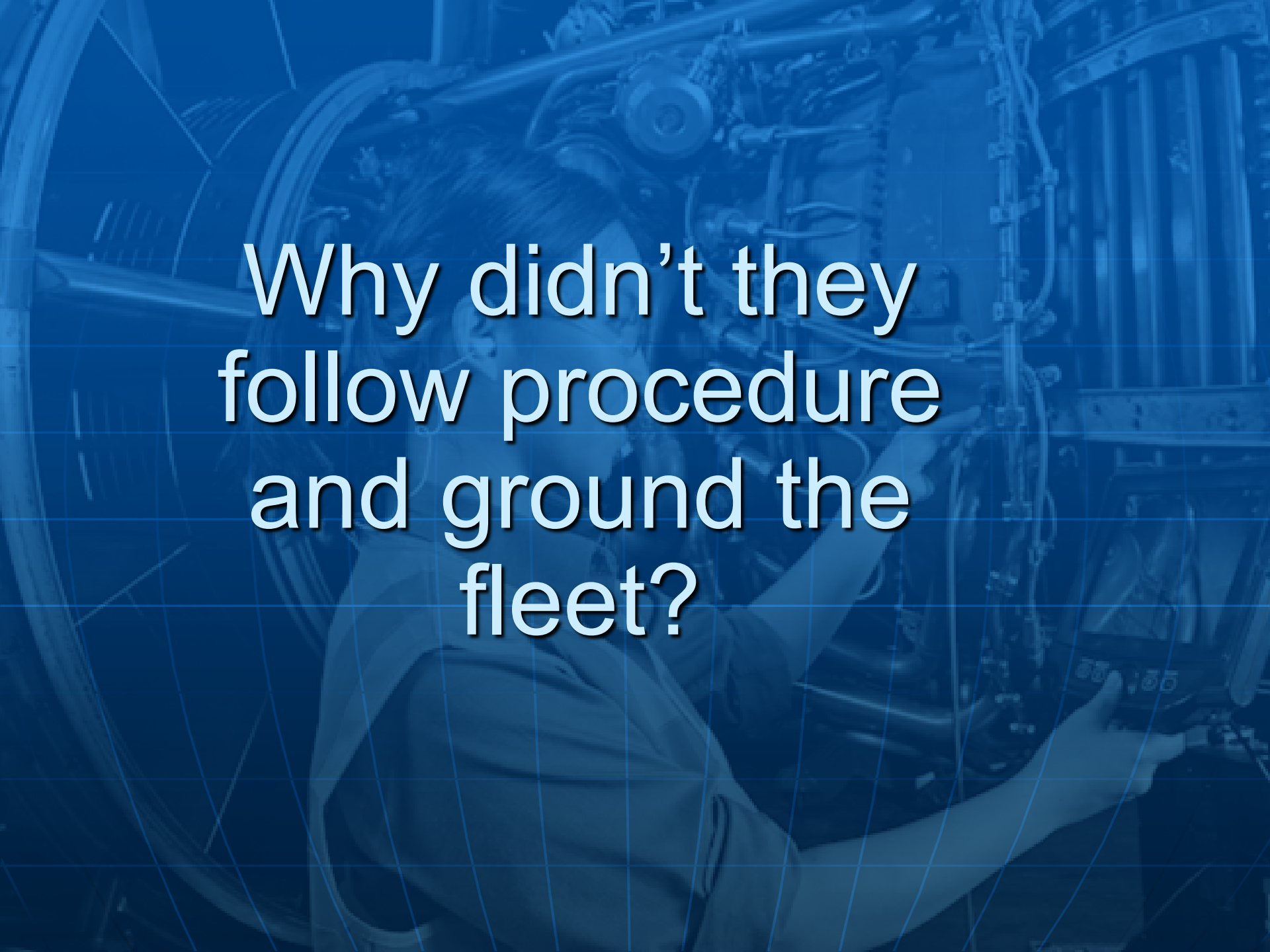
They cannot show any
signs of failure



Starting on mission three the inspection noted that the O-Rings (that were never designed to touch fire) were in fact being touched by fire



This was a "Level 1 Criticality" issue.

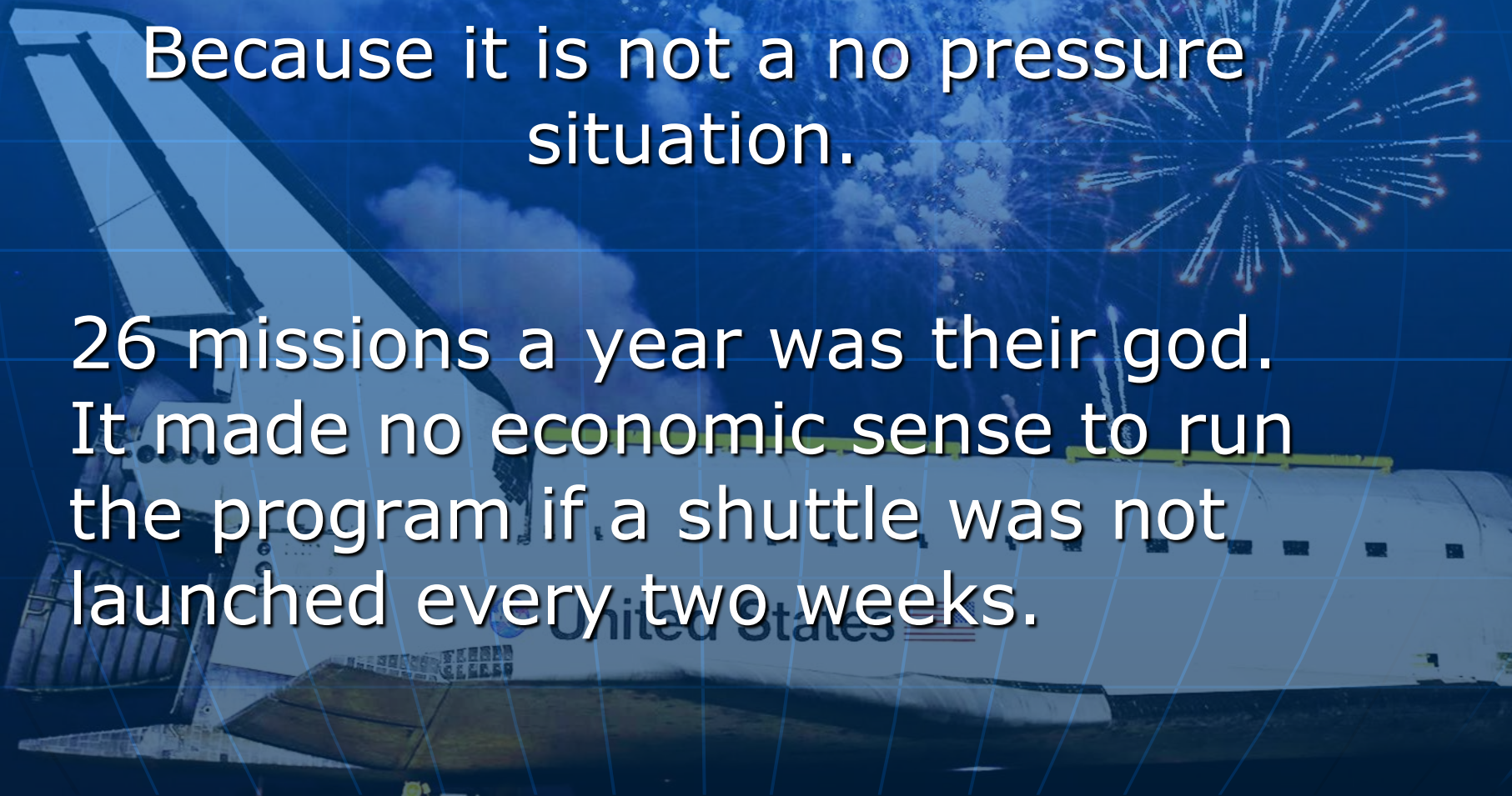


Why didn't they
follow procedure
and ground the
fleet?

Why was the Standard of Performance not met?

Because it is not a no pressure situation.

26 missions a year was their god. It made no economic sense to run the program if a shuttle was not launched every two weeks.



**What is the normal human
performance in a
high-pressure situation?**



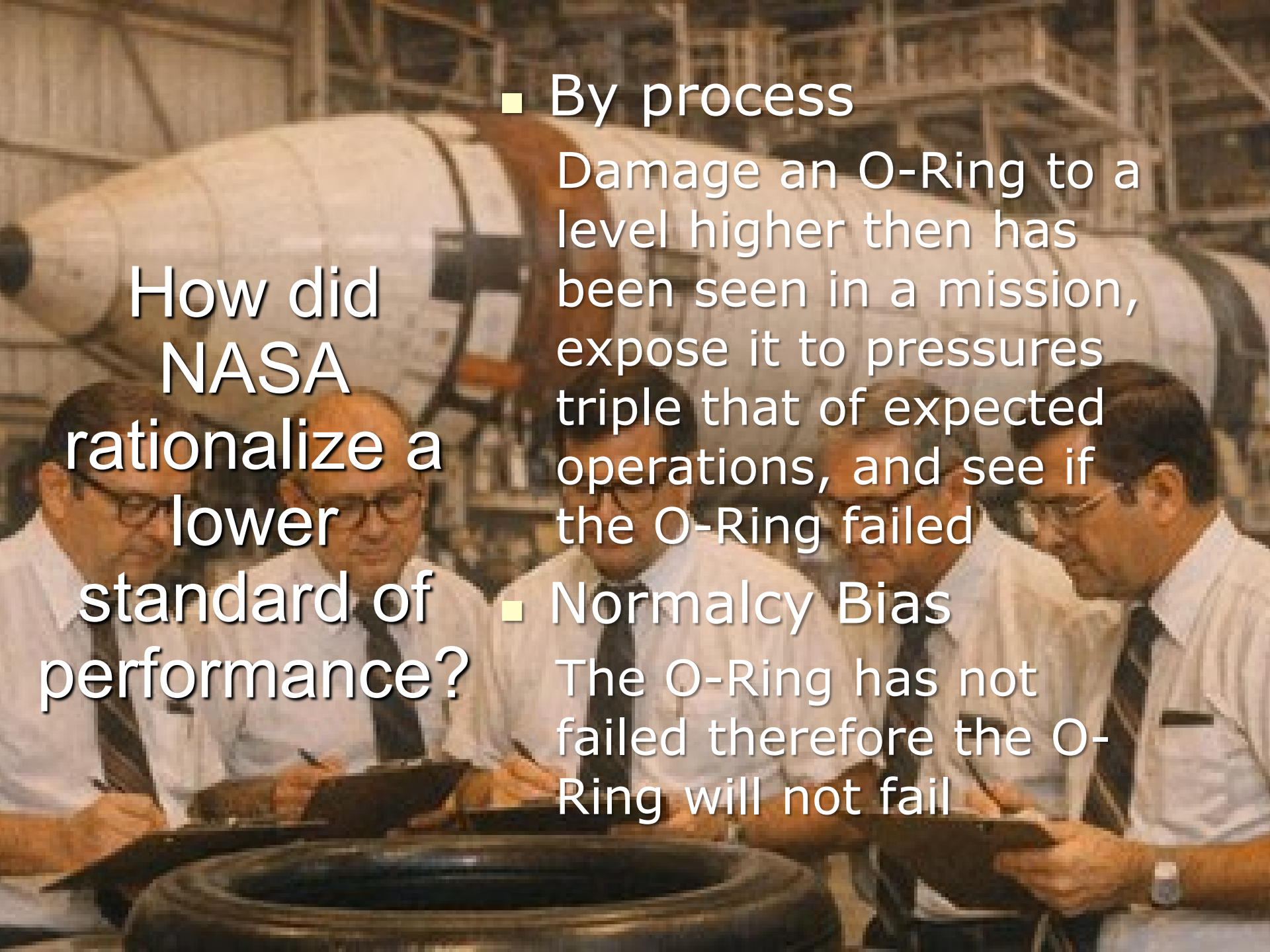
**I cannot execute to meet the
standards I've been trained to
meet.**

(Competing Expectations)



I'll take a shortcut!

**How do we rationalize a shortcut
(a lower standard of performance)?**

A photograph showing four men in white shirts and ties, likely NASA engineers, gathered around a large, dark, circular O-ring component. They are in a factory or workshop setting, with large industrial equipment visible in the background. The text is overlaid on the left side of the image.

How did
NASA
rationalize a
lower
standard of
performance?

- By process

Damage an O-Ring to a level higher than has been seen in a mission, expose it to pressures triple that of expected operations, and see if the O-Ring failed

- Normalcy Bias

The O-Ring has not failed therefore the O-Ring will not fail



**NASA achieved
Organizational
Acceptance, now what?**

Challenger was no accident.
Challenger was a
“Predictable Surprise!”



What is the reality of
most of our root cause
corrective actions?

Point your finger at
the team member



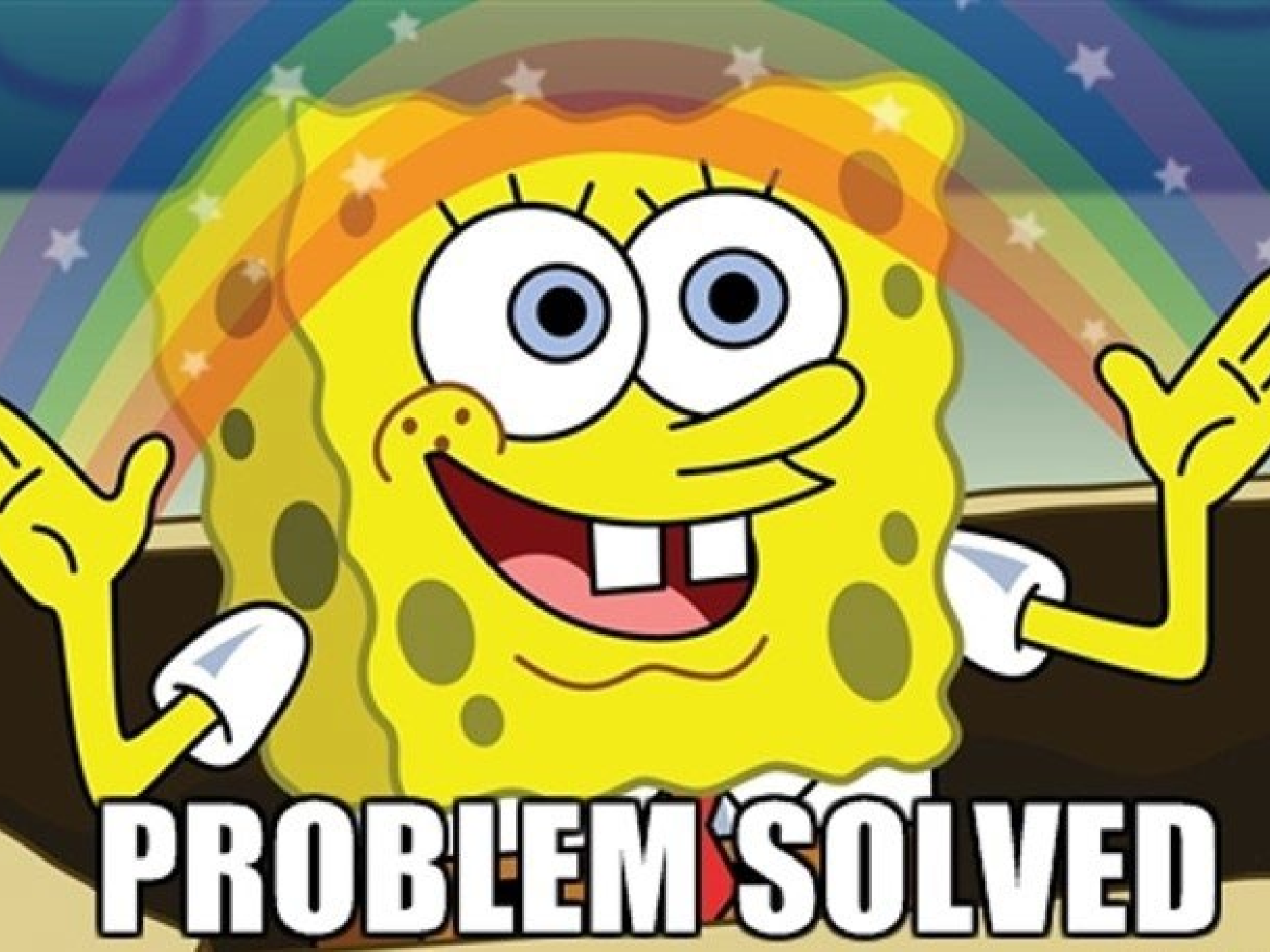


**UPDATE THE SOP...
THAT WILL FIX THE PROBLEM!**

Or better yet...

Here's your sign!



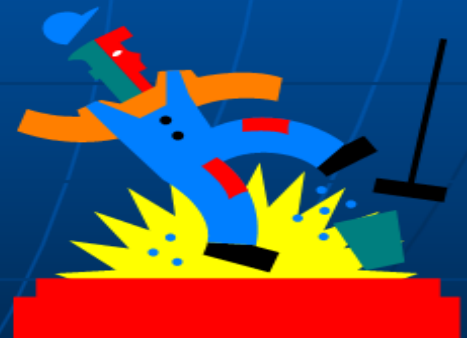
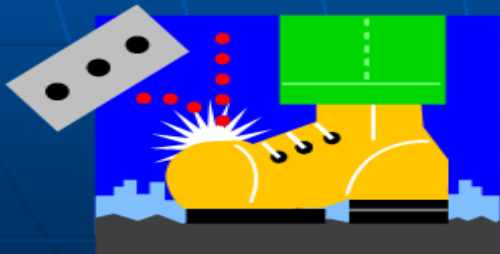


PROBLEM SOLVED

Now that we have a
foundation, let's explore
Root Cause analysis to
impact Diverse Culture
Change!



Incident



Incident

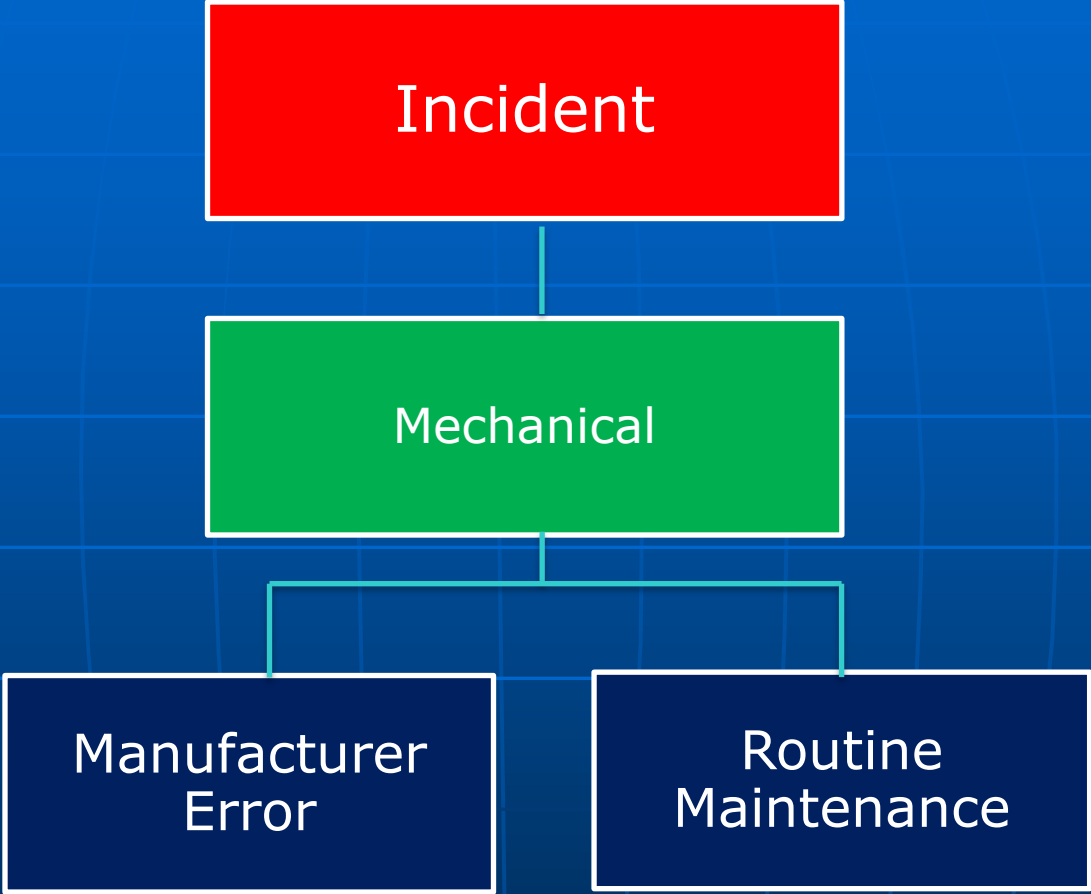
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graph TD; Incident[Incident] --- Mechanical[Mechanical]; Incident --- Preparation[Preparation]; Incident --- PersonalChoice[Personal Choice];
```

Mechanical

Preparation

Personal
Choice

Incident



```
graph TD; Incident[Incident] --> Mechanical[Mechanical]; Mechanical --> ManufacturerError[Manufacturer Error]; Mechanical --> RoutineMaintenance[Routine Maintenance];
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Mechanical

Manufacturer
Error

Routine
Maintenance

Incident

Preparation

Expectations

Training

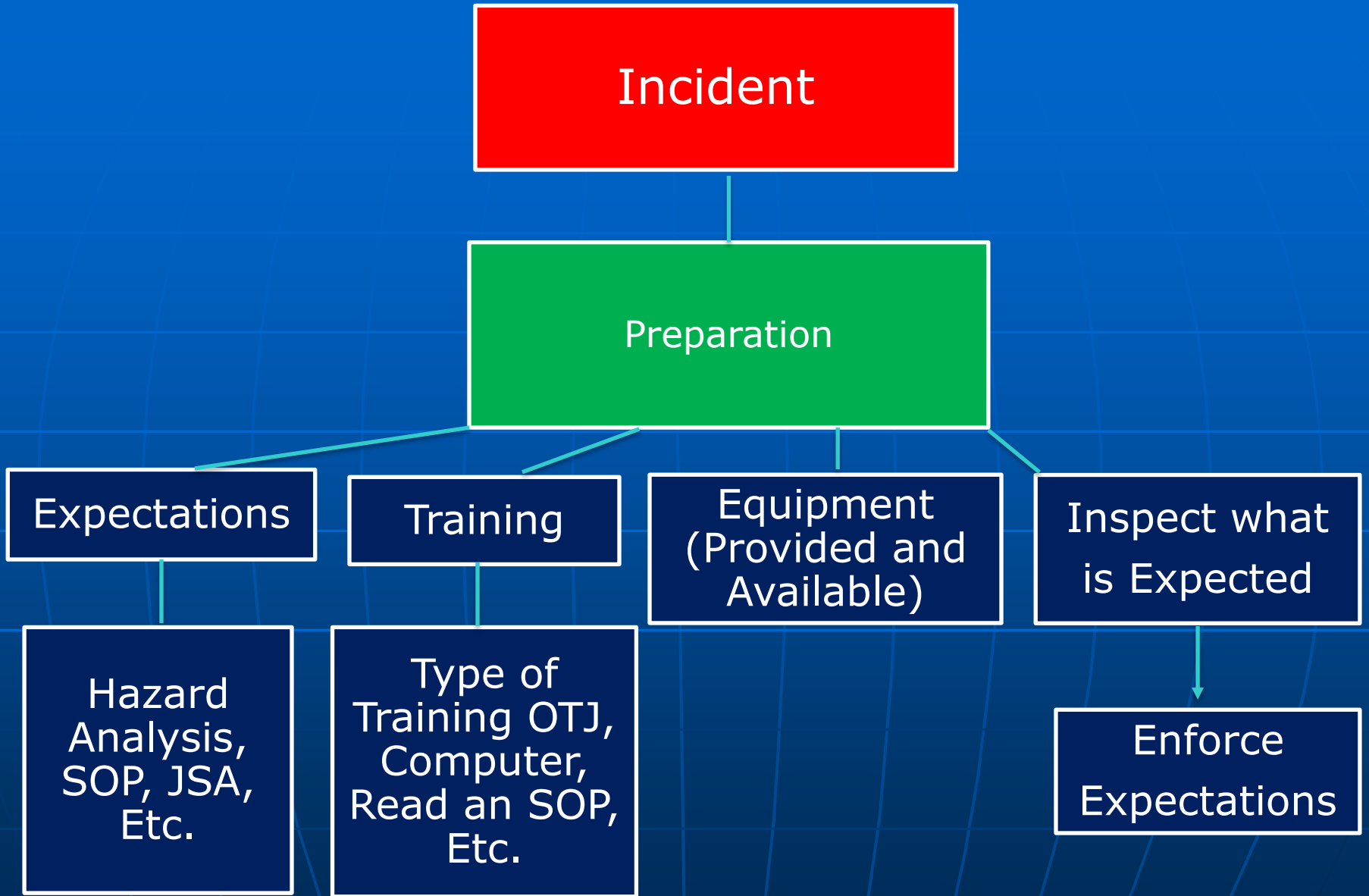
Equipment
(Provided and
Available)

Inspect what
is Expected

Hazard
Analysis,
SOP, JSA,
Etc.

Type of
Training OTJ,
Computer,
Read an SOP,
Etc.

Enforce
Expectations



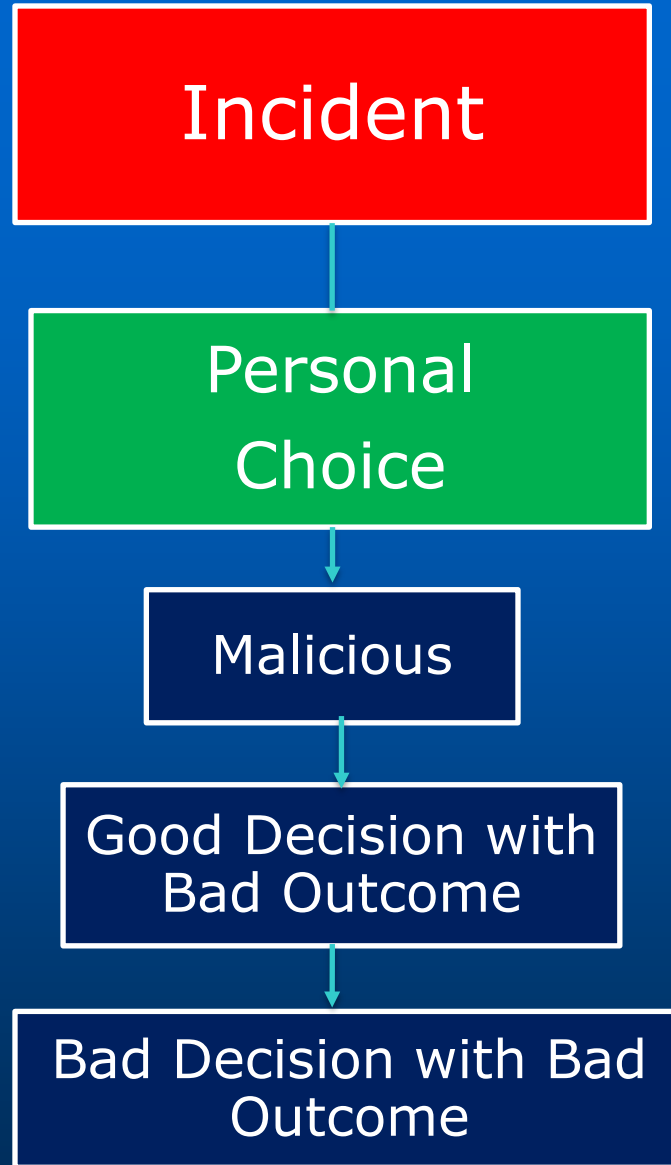
Incident

Personal
Choice

Malicious

Good Decision with
Bad Outcome

Bad Decision with Bad
Outcome



Incident

Mechanical

Manufacturer
Error

Routine
Maintenance

Preparation

Expectations

Hazard
Analysis,
SOP, JSA,
Etc.

Training

Equipment
(Provided and
Available)

Inspect what
is Expected

Enforce
Expectations

Personal Choice

Malicious

Good Decision
with Bad Outcome

Bad Decision with
Bad Outcome

What about the 6th “Why”?

SAFETY CULTURE



WHY did our culture allow or encourage this to happen?

Incident

Mechanical

Manufacturer Error

Routine Maintenance

Preparation

Expectations

Hazard Analysis, SOP, JSA, Etc.

Training

Equipment (Provided and Available)

Inspect what is Expected

Enforce Expectations

Personal Choice

Malicious

Good Decision with Bad Outcome

Bad Decision with Bad Outcome

Requires an Assessment for accountability

Continue to ask why to get the root cause

(5-Why)

What was the underlying cultural issue?

(6th Why)

Not all expectations are in writing. Some are just common sense! (i.e. Don't hit your hand with a hammer)

This does not mean there was any evil intent!

Often this is an "in hindsight" question.



WHEN YOU SEE THIS...



DO YOU SEE THIS?





When you see this...

**DO YOU
SEE THIS?**





When this results in an injury...





**When a team member
“crashes a plane” are we as
leaders willing to take
responsibility for our culture?**

Any Questions or Comments

