



PREVENTION OF
REPEATED
DROPPED OBJECTS
BY
IMPLEMENTING
OEM'S RECOMMENDATION

DROPS WELLS FORUM 2024.10.29

START
NOV DROPPED
OBJECT PROJECT

RESULTS AND
DISCUSSION

2012

2013

2014

2018

2022

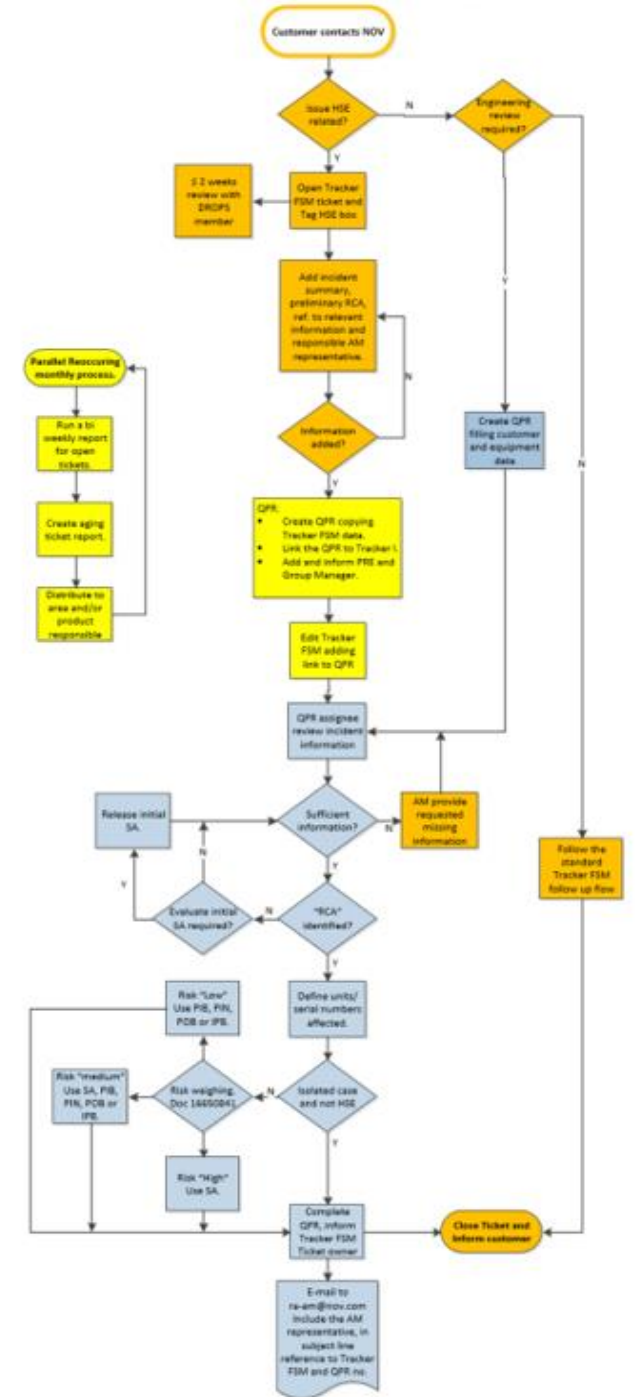
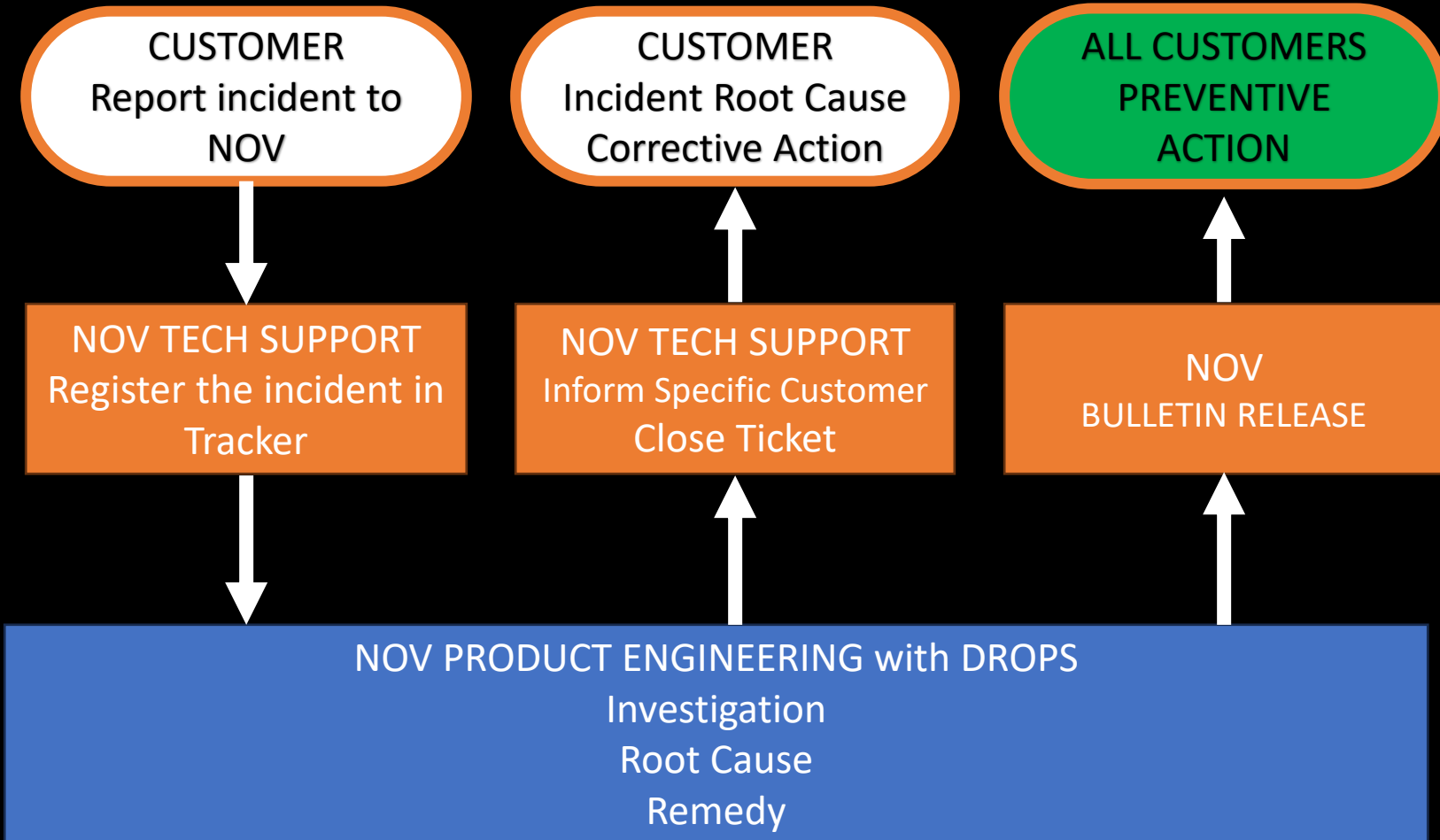
2024

INCIDENT
DATA
COLLECTION

INCIDENT ROOT CAUSE REVIEW AND ANALYSIS (sample years)

TRACKER FLOW

Process of handling Customer report on HSE/DROPS

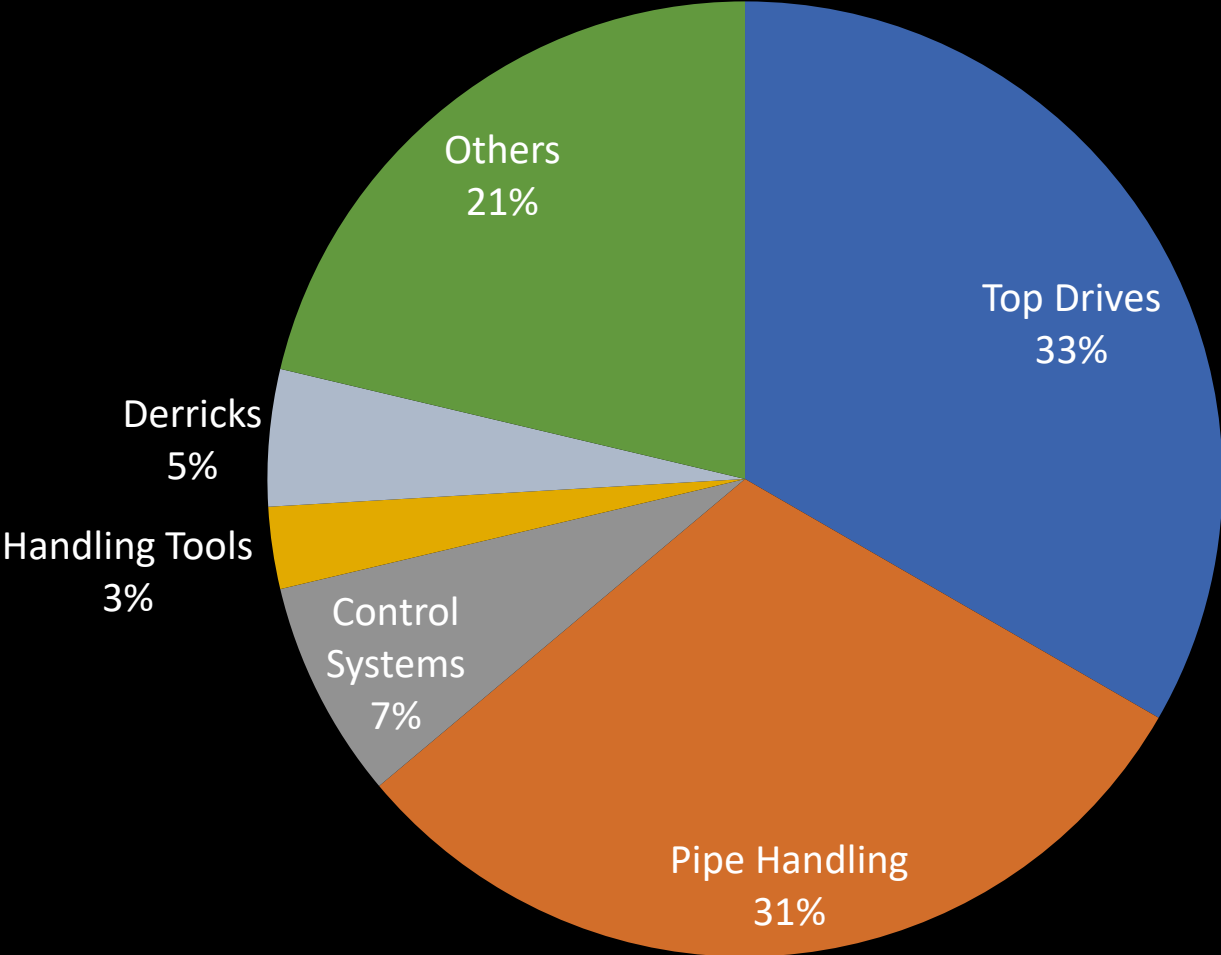


TOP DRIVE STORY

The background of the slide is a dark, semi-transparent image of an industrial top drive assembly. A large, circular, textured metal component is the central focus, with a dark circular hole in the center. The surrounding area shows various mechanical parts, including yellow structural elements and cables, all dimly lit.

FINDING PRIORITIES

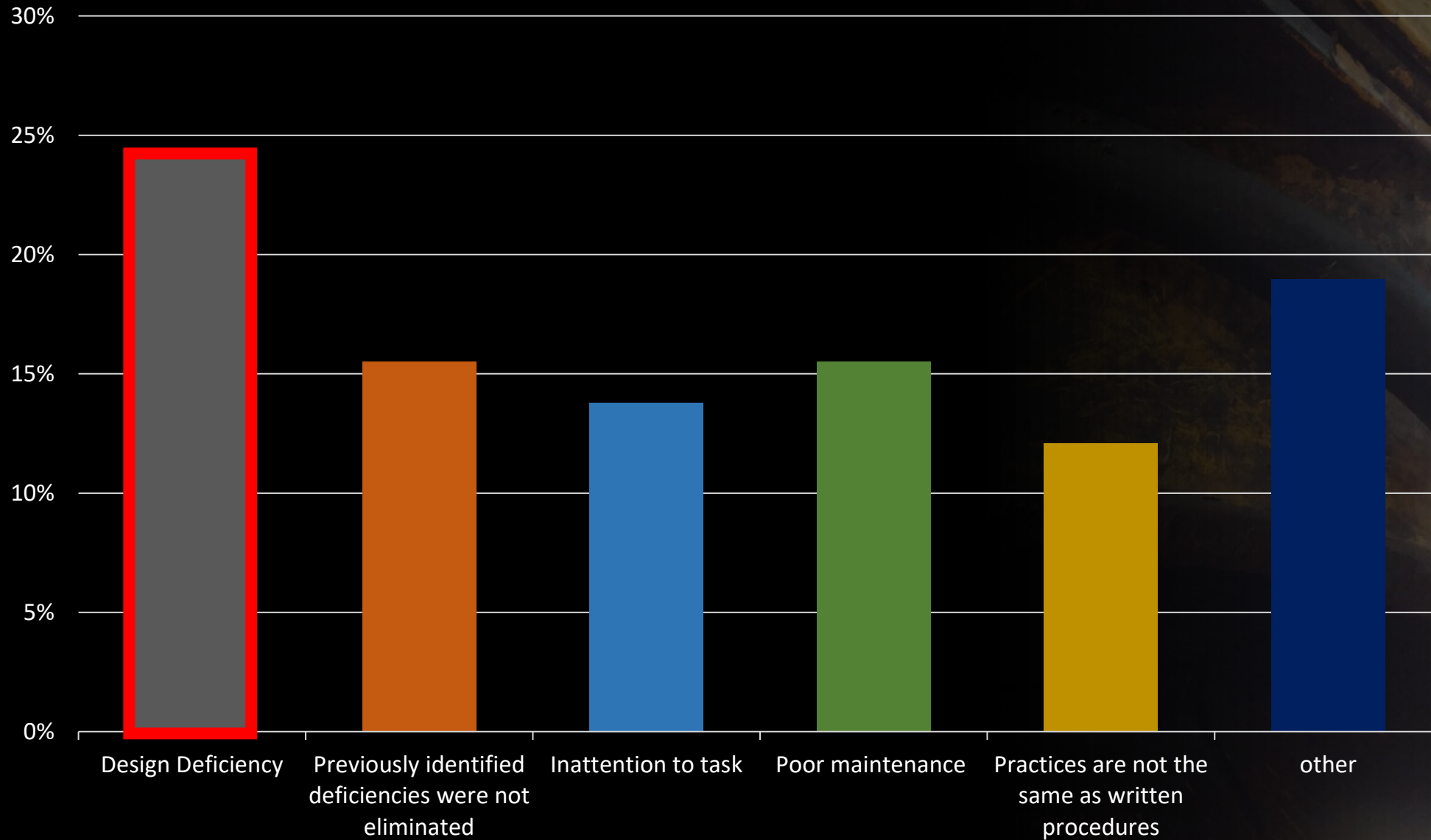
DROPS INCIDENT PER NOV PRODUCT FAMILY (2012)



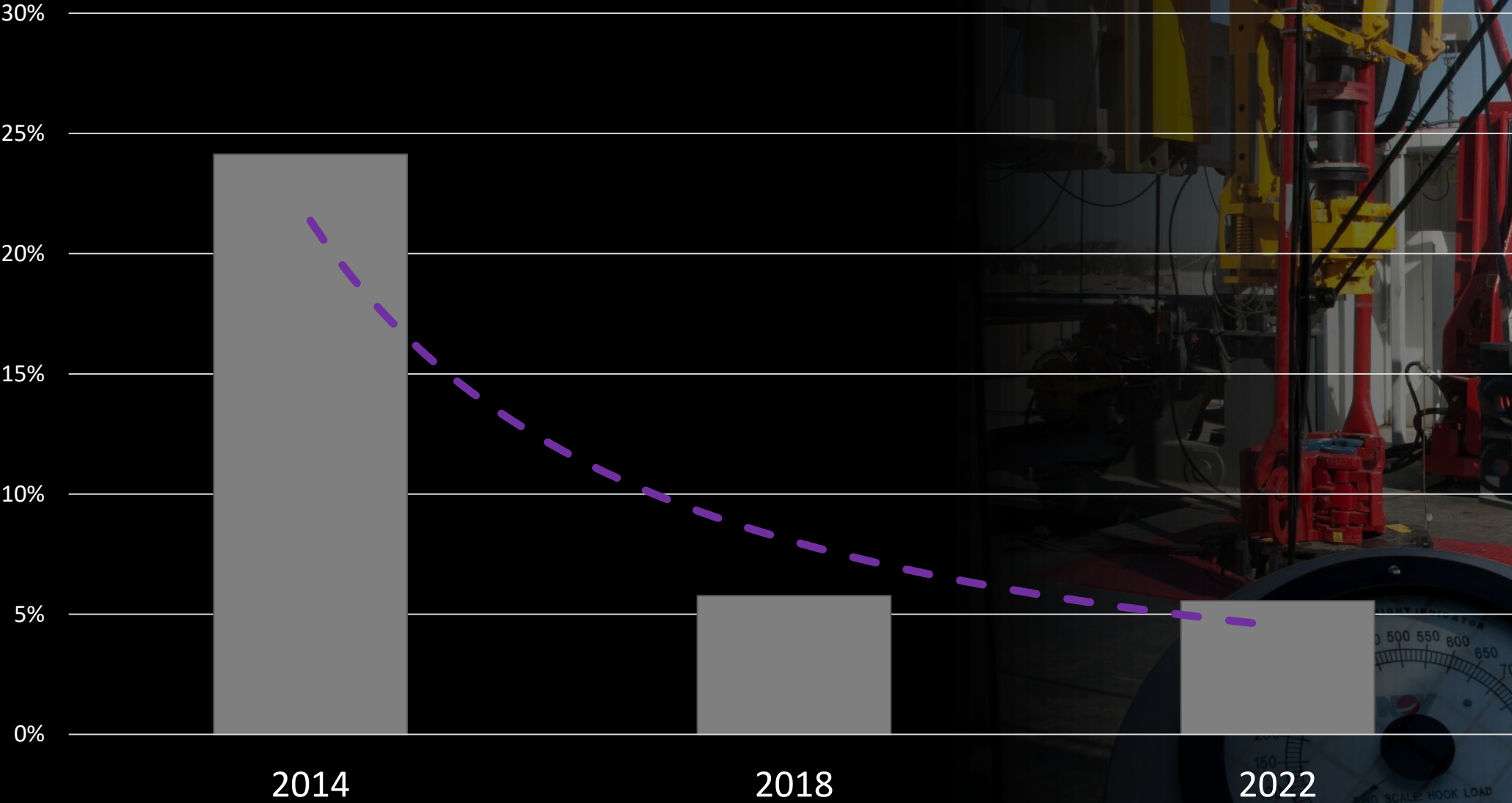
How we approached to eliminate drops for Top Drives:

- DESIGN REVIEW
 - WORKSHOP REVIEW
 - ➔ MANUFACTURING AND ASSEMBLY
- DOCUMENTATION UPDATED WITH SECONDARY
RETENTION AND DROP PREVENTION DETAILS

2014 – IDENTIFIED ROOT CAUSES (Top Drives-Delivered before 2014)



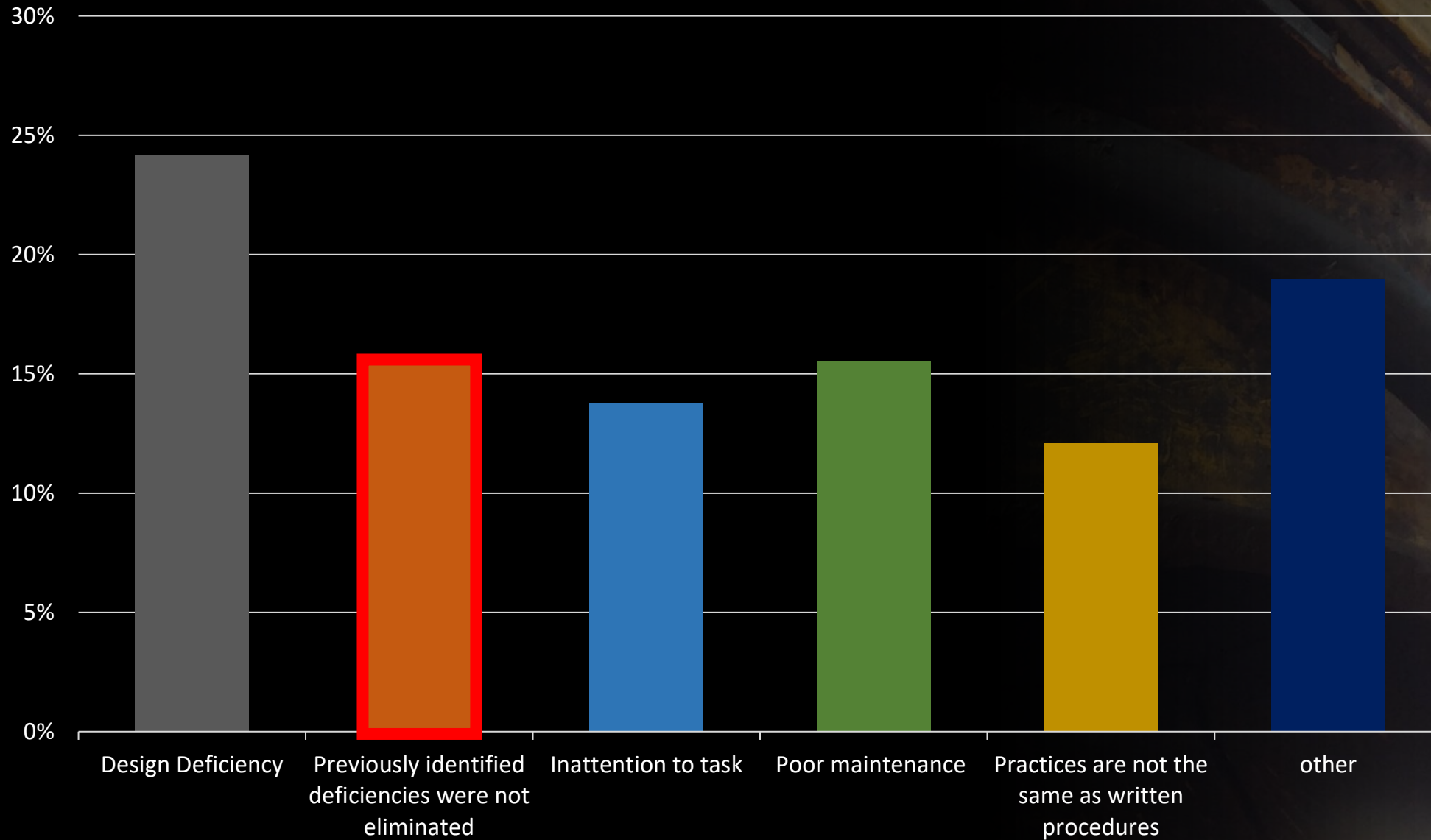
DESIGN DEFICIENCY (Top Drives)



The background of the slide is a dark, semi-transparent image of industrial machinery. A prominent feature is a large, circular, textured metal component, possibly a flywheel or a large pulley, which is the central focus of the lower half of the image. The machinery is yellow and black, and the overall scene is dimly lit, suggesting an industrial or factory environment.

The one incident story

2014 – IDENTIFIED ROOT CAUSES



What if we not follow OEM's recommendation

2016 August OEM releases

1000011767-PIN

2022 September OEM releases

1000080696-SA

2023 April OEM receive report and register

DROPPED OBJECT INCIDENT

Product Improvement Notification



Date: 24 August 2016
Bulletin Number: 1000011767-PIN Revision: 01

Product Safety Alert



Date: 02 September 2022
Bulletin Number: 1000080696-SA Revision: 01

Top Drive

Subject:	Dropped Object Involving HPS Motor Cooling Blower Assembly
Product Model:	HPS-02-500, HPS-03-750, HPS-03-1000, HPS-04-500, and HPS-04-750 Top Drives
Effectivity:	All HPS-02-500, HPS-03-750, HPS-03-1000, HPS-04-500, and HPS-04-750 Top Drives with GE drilling motors manufactured prior to 2015 with Halifax Blower Assemblies
Affected Assemblies:	HPS-02, -03, -04 Motor Cooling Halifax Blower Assembly (P/N XD1418A0028)

Objective

To advise customers of dropped louvers from an HPS motor cooling assembly, and to advise inspection.

Issue

NOV has received a report of louvers from an HPS-02, -03, -04 Motor Cooling Halifax Blower Assembly (XD1418A0028) filter box, where the welds broke and two louvers fell to the rig floor (see Figure 1). There were no injuries as result of this incident.

The Halifax motor cooling assembly filter boxes are comprised of multiple louvers that were previously tack welded in place. Halifax reported that the welds were changed from a tack weld to a fillet weld in 2014 due to reported weld failures (see Figure 2). There have been no reports of weld failures after this improvement.

Solution

NOV recommends all customers immediately inspect the filter box louver welds for signs of failure or cracks. If cracks are found, customers are advised to repair by TIG welding a minimum 1/2-inch long, 1/8-inch fillet weld or as much additional weld to each louver end as access allows (Filter box and louver material: Aluminum 6060-T66). For customers with HPS described in the Effectivity section, NOV recommends adding a lanyard through all louvers. To add lanyard drill holes (approximately 3 in. from the top) through all louvers and both ends of the filter box, thread the lanyard (0.063-in. OD minimum) through and crimp the lanyard ends together (see Figure 3). For affected customers who opt not to add the lanyards, NOV recommends visual inspection of the tack welds on a monthly basis.

Avoidable Incident Details:

Top Drive cooling blower guard fin drops 26 meters to rig floor (while performing Drawworks calibration). A piece of aluminum (58cm x 8.5cm) weighting 350 grams was observed on the rig floor 3 meters away from rotary table well center.

Video footage and SDI recovered showed that the aluminum fin had fallen from a height of 26 meters.

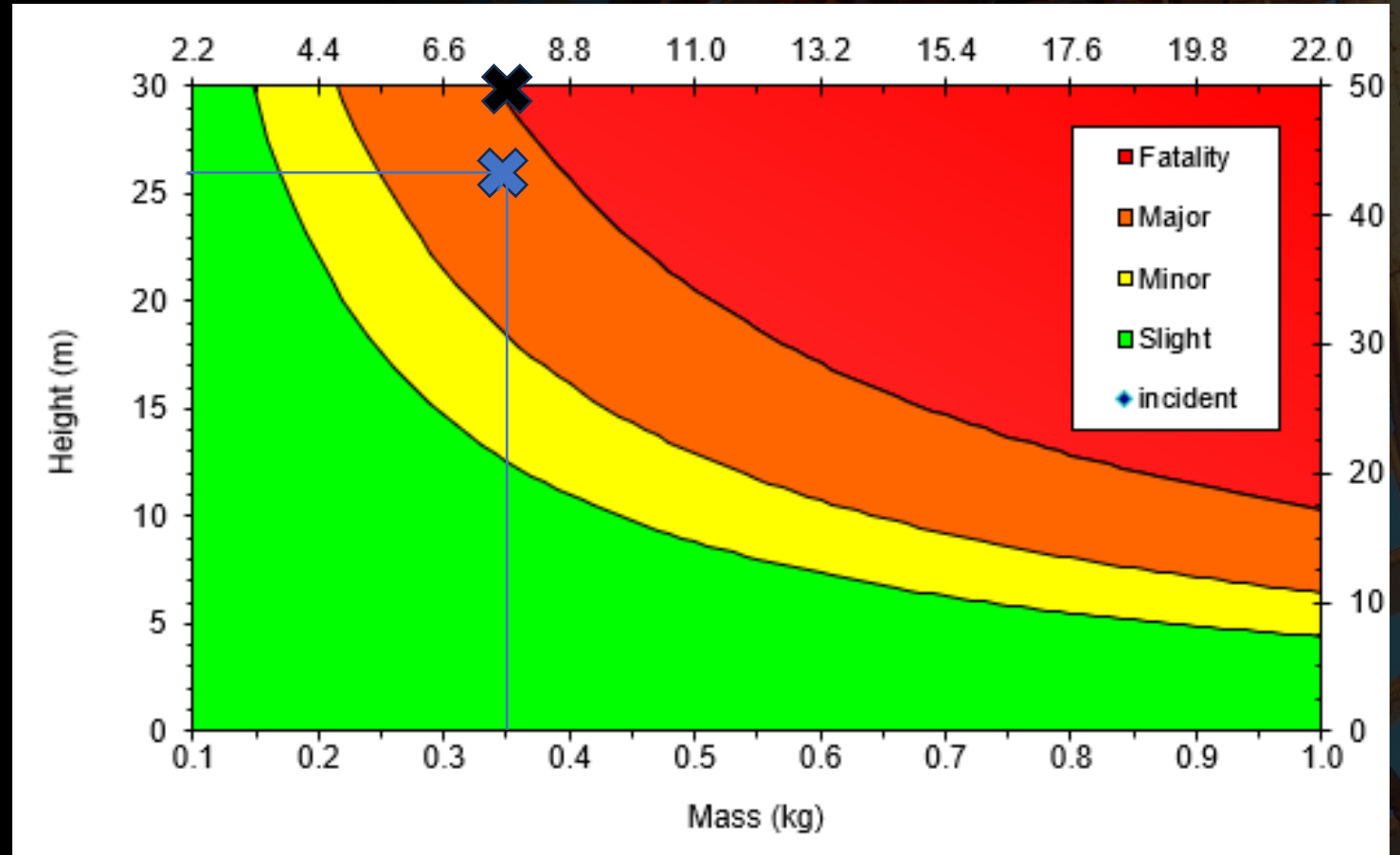


Avoidable Incident Severity potential

weight **350g**
aluminum fin
had fallen from a
height of **26m**

Energy ca 90J

MAJOR: A Lost Time Incident (LTI).
Non-fatal traumatic injury that
causes any loss of time from work
beyond the day or shift it occurred.
Also referred to as Day Away From
Work Case (DAFWC).



Avoidable Incident Root Cause:

Weld type/quality combined with heavy drilling is the original root cause identified (April 2023).

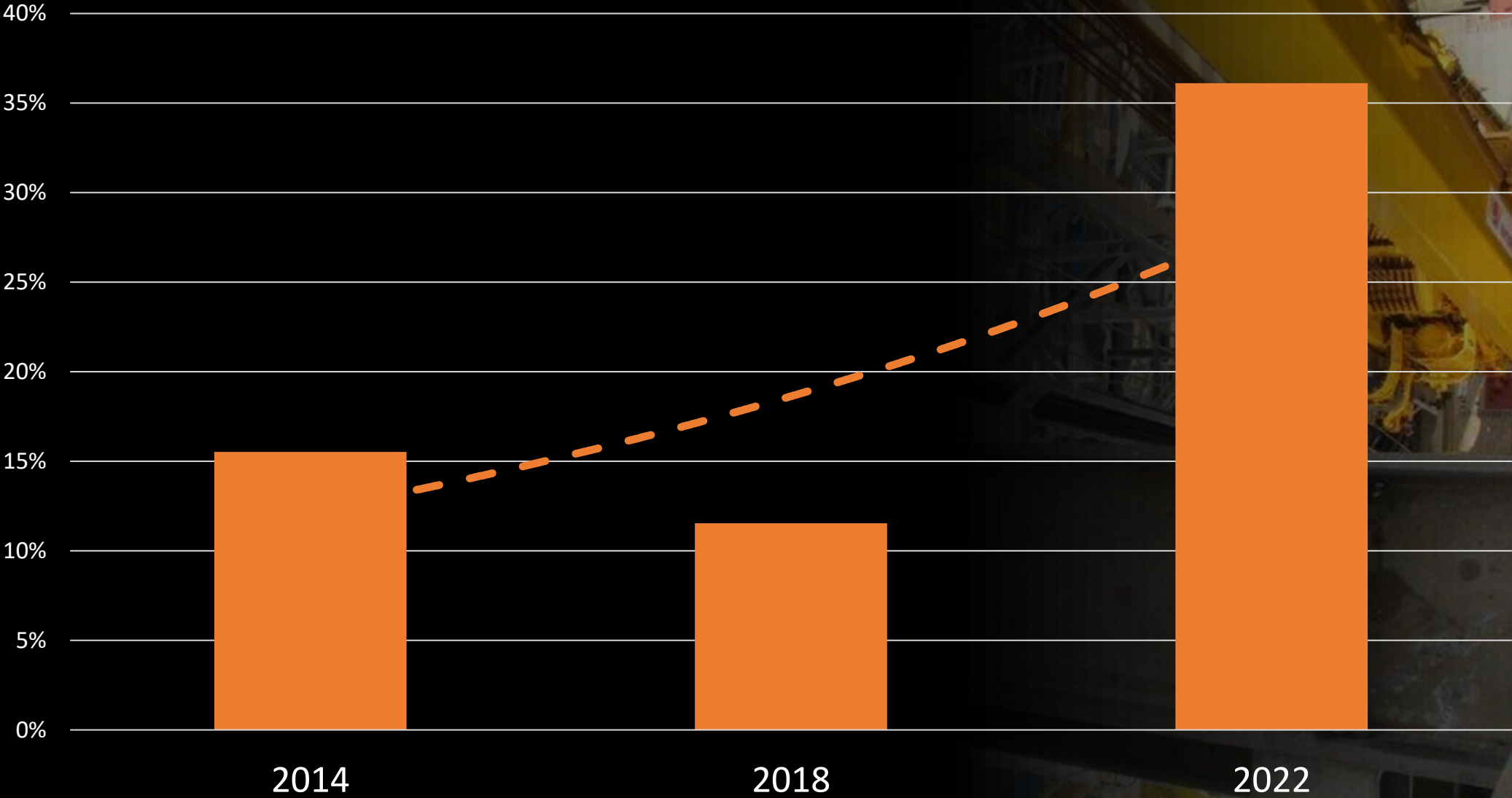
The Customer not implementing product bulletin recommendation allowed a similar incident to occur.





What is the effect on
type and number of incidents?

PREVIOUSLY IDENTIFIED DEFICIENCIES WERE NOT ELIMINATED





Distribution NOV Recommendation

OEM RECOMENDATIONS

 Product Improvement Notification



 Product Information Bulletin

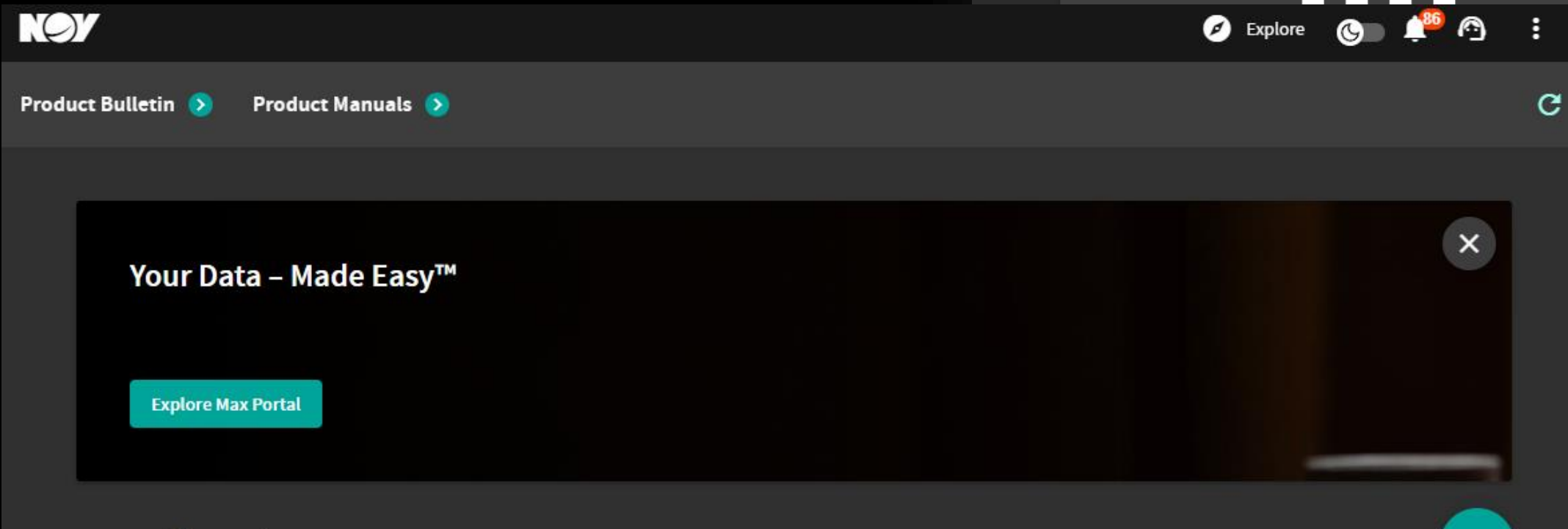
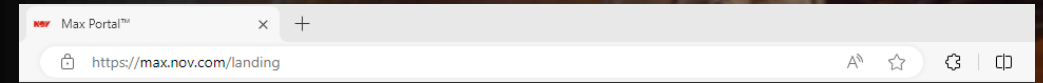


 Product Safety Alert



NOV COMMUNICATION CHANNEL

<https://max.nov.com/dashboard>



What if, and I know this sounds kooky, we communicated with one another?



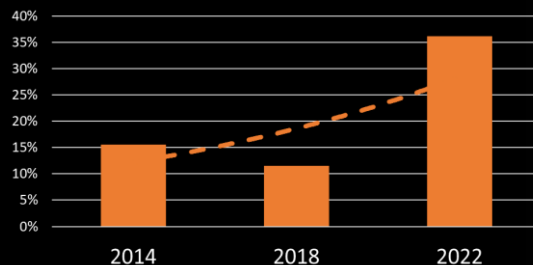
Why we see so many repeated incidents?

Do the right people get access to the information?

How are we as an industry addressing OEM's Recommendation?

What stops us to implement?

What we can do together to reverse the trend?



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