

WEBVTT

1

00:00:05.365 --> 00:00:06.665

Who in here likes bananas?

2

00:00:08.015 --> 00:00:10.345

Love, Love 'em. I heard they love bananas.

3

00:00:10.345 --> 00:00:12.105

I love bananas. I got a banana every day.

4

00:00:12.415 --> 00:00:13.425

Bananas are good for you.

5

00:00:13.425 --> 00:00:14.785

They're hearty, they're nutritious.

6

00:00:15.205 --> 00:00:17.065

And it's just, it's a clean fruit, you know?

7

00:00:17.065 --> 00:00:19.225

You don't get your hands dirty. It's just like a grapefruit.

8

00:00:21.445 --> 00:00:23.105

But I, I'm a little bit concerned

9

00:00:23.815 --> 00:00:26.505

because we have all these banana lovers in this room

10

00:00:27.765 --> 00:00:29.425

and you see, I sort of walk around a bit

11

00:00:29.425 --> 00:00:30.705

and Huffer walks around a bit

12

00:00:31.045 --> 00:00:32.665

and we've got banana lovers in the room

13

00:00:33.165 --> 00:00:35.185

and folks that stand up here and walk around a lot.

14

00:00:36.265 --> 00:00:37.725

Do you guys see what, like what could go wrong?

15

00:00:40.485 --> 00:00:42.375

Anybody see anything lot

16

00:00:42.375 --> 00:00:44.615

with slip on a banana peel slip on a banana peel, right?

17

00:00:45.915 --> 00:00:47.155

I don't want that to happen. Why?

18

00:00:47.535 --> 00:00:49.315

Why would one of us slip on a banana peel?

19

00:00:54.385 --> 00:00:56.115

It's 'cause somebody dropped it. Okay.

20

00:00:56.545 --> 00:00:58.315

Slip on a potato peel because somebody dropped it.

21

00:00:58.315 --> 00:00:59.875

Why would somebody drop a banana peel?

22

00:01:00.895 --> 00:01:02.595

No Node garbage can.

23

00:01:02.945 --> 00:01:05.915

Okay, say again.

24

00:01:06.495 --> 00:01:09.035

Is all slippery. They are slippery. That's right.

25

00:01:09.345 --> 00:01:11.235

Good to note. Bananas are slippery.

26

00:01:11.375 --> 00:01:12.395

Why would, so why else would

27

00:01:12.555 --> 00:01:13.595

somebody drop a banana peel here?

28

00:01:15.975 --> 00:01:19.715

Say again. Wait, no, it's not,

29

00:01:20.025 --> 00:01:22.035

it's nothing in the flight manual prohibits it.

30

00:01:22.375 --> 00:01:26.875

Spoken like a naval aviator wade, we need to Your,

31

00:01:26.875 --> 00:01:29.755

your Air Force bros are gonna not be happy about.

32

00:01:30.095 --> 00:01:32.355

So I did. I went to red Flag early on in my career.

33

00:01:32.425 --> 00:01:34.275

It's a month long exercise where, you know,

34

00:01:34.275 --> 00:01:36.315

big air force thing and we were the bad guys.

35

00:01:36.375 --> 00:01:39.235

We came out there and I learned about Air Force bros.

36

00:01:39.235 --> 00:01:43.475

And dudes, right? So a bro is somebody in your, your clan.

37

00:01:43.945 --> 00:01:44.995

It's cool if you have a bro,

38

00:01:45.175 --> 00:01:47.595

and the dudes are the guys from the other squadrons.

39

00:01:47.595 --> 00:01:49.955

They're sort of outside your circle of trust, right? Wade?

40

00:01:49.975 --> 00:01:52.595

Did I get that right? Okay, close enough.

41
00:01:53.895 --> 00:01:55.675
So there's a banana peel. I might slip on it.

42
00:01:55.675 --> 00:01:56.715
Why would I slip on it? 'cause

43
00:01:56.715 --> 00:01:57.955
they're banana peels on the floor.

44
00:01:58.045 --> 00:02:00.435
Maybe there's some undisciplined banana eaters in here.

45
00:02:00.535 --> 00:02:02.635
We don't have garbage cans. So we we got that.

46
00:02:03.095 --> 00:02:07.395
So, so what if I slip on a banana peel? Is it a big deal?

47
00:02:09.625 --> 00:02:10.675
Sure. Why? What could happen?

48
00:02:11.525 --> 00:02:13.215
Break a hip. Could break a hip,

49
00:02:13.645 --> 00:02:15.615
slip it on a banana peel, break a hip.

50
00:02:17.275 --> 00:02:19.295
And that's bad, right? What a, is that really

51
00:02:19.485 --> 00:02:21.055
what, what really could happen?

52
00:02:21.255 --> 00:02:23.335
I mean, is that, get embarrassed? I could get embarrassed.

53
00:02:23.335 --> 00:02:26.095
So, there you go. Yeah. It's high risk. High risk.

54
00:02:26.395 --> 00:02:30.775

Now, has anybody seen the, um, MythBusters on banana peels?

55

00:02:32.765 --> 00:02:37.225

Do people really slip on banana peels? Maybe, maybe not.

56

00:02:37.535 --> 00:02:39.985

It's, they, they, they did the, the science behind it.

57

00:02:39.985 --> 00:02:42.185

They demonstrated empirically that banana peels aren't

58

00:02:42.185 --> 00:02:43.505

as bad as they're made out to be.

59

00:02:43.505 --> 00:02:46.065

But nevertheless, there is a risk that one

60

00:02:46.065 --> 00:02:48.305

of us could slip on a banana peel and break a hip

61

00:02:48.325 --> 00:02:49.825

and that would be bad or get embarrassed.

62

00:02:50.165 --> 00:02:53.465

Um, okay, but we're not gonna let that happen, right?

63

00:02:53.655 --> 00:02:56.725

What can we do in this environment

64

00:02:57.305 --> 00:03:00.285

of known banana lovers in a conference room?

65

00:03:01.105 --> 00:03:04.045

That's our condition. 'cause you what's Fki? FIKI.

66

00:03:05.965 --> 00:03:09.025

What's that known icing flight? Didn't known icing, right?

67

00:03:09.025 --> 00:03:10.465

We got that in flight test. Well, we have

68
00:03:11.365 --> 00:03:14.505
banana lovers in a conference room condition here.

69
00:03:14.715 --> 00:03:15.945
We're not gonna let this happen.

70
00:03:16.015 --> 00:03:17.785
What can we do to keep me

71
00:03:17.905 --> 00:03:19.945
and huffer from slipping on a banana

72
00:03:19.945 --> 00:03:21.065
peel and falling, breaking our hip?

73
00:03:21.095 --> 00:03:24.835
What can we do? Put it garbage cans. Okay.

74
00:03:26.295 --> 00:03:29.995
No more bananas. Ban bananas. Avoid risk, right?

75
00:03:30.505 --> 00:03:33.235
Eliminate except no unnecessary risks. What else?

76
00:03:34.105 --> 00:03:35.155
Eliminate the peel.

77
00:03:35.425 --> 00:03:37.515
Eliminate. Ooh, eliminate the peel.

78
00:03:38.255 --> 00:03:40.955
We could come up with a new banana that is peel this.

79
00:03:41.335 --> 00:03:45.035
We could genetically design it and mass produce it.

80
00:03:45.955 --> 00:03:48.835
I love it. That might take a while. Yes.

81
00:03:50.585 --> 00:03:54.555

Jujitsu Ju Okay. Training. I like it.

82

00:03:54.555 --> 00:03:57.755

That's, he said juujitsu skills so that when I slip

83

00:03:58.295 --> 00:04:01.115

I'm like, you know, I don't know what you call that,

84

00:04:01.215 --> 00:04:02.795

but it's parkour, right?

85

00:04:02.795 --> 00:04:04.155

That's what my kids jitsu. Yes.

86

00:04:07.695 --> 00:04:09.905

Okay. Yeah, absolutely. Let's get some procedures.

87

00:04:09.905 --> 00:04:11.785

We're gonna have some training. You guys are gonna stick

88

00:04:11.785 --> 00:04:13.745

around Thursday afternoon, we're gonna go to the bar

89

00:04:13.945 --> 00:04:16.065

and we're gonna have banana handling procedure

90

00:04:16.305 --> 00:04:17.585

training for next year.

91

00:04:18.615 --> 00:04:23.225

Okay? Have any of you seen, um, you know, those sumo suits

92

00:04:23.675 --> 00:04:26.185

where me and somebody else put on a sumo suit

93

00:04:26.245 --> 00:04:27.345

and we go and we run out?

94

00:04:27.375 --> 00:04:29.945

What if I wore a sumo suit so that if I slipped,

95
00:04:30.425 --> 00:04:31.985
I would just fall and I'd bounce right back up.

96
00:04:35.645 --> 00:04:36.855
What else could I do to

97
00:04:40.155 --> 00:04:41.295
banana detection system?

98
00:04:41.575 --> 00:04:43.815
I could wear a helmet or cleats.

99
00:04:44.125 --> 00:04:46.295
Just provide the banana without the peel.

100
00:04:46.925 --> 00:04:48.455
Provide the banana without the peel.

101
00:04:48.485 --> 00:04:50.255
Okay, so out there we can just have a tray

102
00:04:50.515 --> 00:04:51.975
of peeled bananas.

103
00:04:54.035 --> 00:04:55.375
You can have mine.

104
00:05:00.075 --> 00:05:02.215
Um, when we put maintainers up,

105
00:05:02.315 --> 00:05:04.495
up on high aircraft in a hangar,

106
00:05:05.355 --> 00:05:06.725
what do we do? Sometimes Fall

107
00:05:07.315 --> 00:05:09.765
Harness Here in, what do we do?

108
00:05:09.765 --> 00:05:12.805

Fall protection. Fall protection. In the form of harness.

109

00:05:12.805 --> 00:05:15.705

Harness. And the harness has

110

00:05:15.705 --> 00:05:17.985

what on it that goes to.

111

00:05:19.585 --> 00:05:21.885

So in here, why don't we put an I-beam up there

112

00:05:22.425 --> 00:05:24.325

and I can wear a harness and we get a rope,

113

00:05:24.465 --> 00:05:26.405

and I can, so if I did slip, it would just catch me.

114

00:05:26.405 --> 00:05:27.565

It'd be like Peter Pan, right?

115

00:05:28.105 --> 00:05:30.765

Um, so notice it, it, so we got it right.

116

00:05:30.965 --> 00:05:32.685

We're sort of in jest, but we're thinking,

117

00:05:32.685 --> 00:05:33.765

we're using critical thinking.

118

00:05:33.765 --> 00:05:36.205

We're talking through things. Have I used the word hazard

119

00:05:36.705 --> 00:05:39.325

or cause or effect or risk management?

120

00:05:39.505 --> 00:05:42.005

No, I haven't. But intuitively we get it.

121

00:05:42.385 --> 00:05:43.765

We see what bad things can happen.

122

00:05:44.145 --> 00:05:46.645

We ask why could that happen? We say, so what?

123

00:05:47.425 --> 00:05:51.725

And then we do what we can to keep it from breaking a hip.

124

00:05:52.355 --> 00:05:54.285

Okay, that's risk management. We're good.

125

00:05:54.425 --> 00:05:55.885

So I think we can just wrap it up now

126

00:05:55.885 --> 00:05:57.005

and go to lunch if you guys want.

127

00:05:57.285 --> 00:05:59.285

'cause I think we got, we got it wired, right?

128

00:05:59.285 --> 00:06:02.515

Do you guys agree? Probably not.

129

00:06:02.515 --> 00:06:05.435

Because remember I said there's that 10%, that 10%

130

00:06:05.435 --> 00:06:08.675

where we all sort of have grown up in different homerooms

131

00:06:08.675 --> 00:06:10.035

and maybe have different perspectives.

132

00:06:10.695 --> 00:06:13.435

Huffer showed us the demographics on where we're from.

133

00:06:14.945 --> 00:06:18.125

Who, uh, who's had went to a DOD test pilot school

134

00:06:18.225 --> 00:06:21.125

and got trained in risk management there, who went

135

00:06:21.125 --> 00:06:22.525

through national test pilot school.

136

00:06:23.585 --> 00:06:26.635

Okay? Who trained on the job in corporate aviation,

137

00:06:28.315 --> 00:06:30.025

Who's been doing risk management like this

138

00:06:30.085 --> 00:06:33.735

for over 20 years, under five years?

139

00:06:35.945 --> 00:06:40.445

We have a huge range of experience based on background

140

00:06:40.665 --> 00:06:41.765

and how long you've been doing it.

141

00:06:41.835 --> 00:06:44.145

Okay? So we're gonna see

142

00:06:44.145 --> 00:06:45.145

that when we break into groups

143

00:06:45.325 --> 00:06:46.465

on our different understandings.

144

00:06:46.485 --> 00:06:50.635

But here, I'll, I'll demonstrate it too.

145

00:06:50.865 --> 00:06:55.355

Okay, so we got a clicker event coming up, so let's log in.

146

00:06:55.555 --> 00:06:56.555

Hopefully you're still there.

147

00:06:57.535 --> 00:07:01.395

Um, although we understand it intuitively, we got a problem.

148

00:07:01.985 --> 00:07:04.155

Okay? So just for giggles,

149
00:07:04.245 --> 00:07:07.635
let's see if we can all agree on the basic foundation

150
00:07:07.635 --> 00:07:09.275
of th a's right, what is a hazard?

151
00:07:10.255 --> 00:07:11.675
So what's the definition of a hazard?

152
00:07:12.515 --> 00:07:15.915
A conditions that are a prerequisite to a mishap.

153
00:07:16.955 --> 00:07:20.035
B, any condition that has the potential of causing a mishap.

154
00:07:20.135 --> 00:07:21.755
Hey, don't cheat, don't look in your books, okay?

155
00:07:21.875 --> 00:07:24.215
I want you to just go and with what you know right now.

156
00:07:24.815 --> 00:07:26.015
C, any condition, event

157
00:07:26.075 --> 00:07:27.895
or circumstance which could lead to an unplanned

158
00:07:27.895 --> 00:07:29.895
or undesired event, or D, any real

159
00:07:29.895 --> 00:07:32.615
or potential condition that can cause injury, illness,

160
00:07:32.715 --> 00:07:33.735
or death of personnel.

161
00:07:34.355 --> 00:07:35.295
All right, so here we go.

162
00:07:45.855 --> 00:07:47.695

I love that song is so appropriate for this, right?

163

00:07:47.695 --> 00:07:51.135

What was that movie? H, Halloween, right? It's terrifying.

164

00:07:51.595 --> 00:07:54.055

The answers are terrifying. That's okay. So good.

165

00:07:54.515 --> 00:07:58.775

You guys said C, that's an overwhelming amount that said C.

166

00:07:59.035 --> 00:08:00.055

What's the correct answer?

167

00:08:01.315 --> 00:08:03.335

All All of them. Yeah, that's right.

168

00:08:03.915 --> 00:08:07.335

So A is who recognizes that? Where's that from?

169

00:08:08.895 --> 00:08:11.715

That's the Nair definition. Naval air systems command.

170

00:08:12.055 --> 00:08:12.715

How about B?

171

00:08:16.915 --> 00:08:18.655

Do you know any? This is sort of trivia.

172

00:08:19.325 --> 00:08:21.455

Well, yeah, depends on the

173

00:08:22.675 --> 00:08:24.635

sometimes you get the accident.

174

00:08:25.825 --> 00:08:28.435

Okay. Okay, fair enough. So I wanna clarify,

175

00:08:28.795 --> 00:08:30.915

I pulled these out of the policies

176

00:08:31.115 --> 00:08:33.675

and instructions that people in this room are following.

177

00:08:34.015 --> 00:08:37.555

So there are organizations, for example, B that's the JSF,

178

00:08:37.555 --> 00:08:38.635

joint operating guide.

179

00:08:39.085 --> 00:08:40.675

Definition of a hazard. Brick.

180

00:08:40.895 --> 00:08:42.075

You should recognize that, right?

181

00:08:43.015 --> 00:08:45.115

Um, C is, uh, the 40, 40, 26.

182

00:08:45.255 --> 00:08:47.475

So pretty cool that right away maybe I

183

00:08:47.855 --> 00:08:49.755

underestimated our ability to agree.

184

00:08:50.015 --> 00:08:51.915

That's the 40 40 26 B definition.

185

00:08:51.915 --> 00:08:52.835

That's what we're gonna be using

186

00:08:52.835 --> 00:08:53.875

for the next two and a half days.

187

00:08:55.205 --> 00:08:57.345

And it's got a significant difference in it, doesn't it?

188

00:08:57.535 --> 00:08:59.865

It's these, all others have one word in common

189

00:09:01.095 --> 00:09:03.835

and 40, 40, 26 opens it up a little bit.

190

00:09:04.365 --> 00:09:06.395

We'll come back to that. Uh, Dee, just for trivia,

191

00:09:06.395 --> 00:09:08.705

anybody know that Air Force?

192

00:09:08.705 --> 00:09:10.065

That's right. I didn't get national up there.

193

00:09:10.065 --> 00:09:12.065

It's a little different. What's, who's from national?

194

00:09:12.975 --> 00:09:14.195

The schoolhouse? Anybody?

195

00:09:16.855 --> 00:09:18.735

Ed, what's different about nationals?

196

00:09:18.735 --> 00:09:20.495

Do you, do you know, I don't wanna put you on the spot.

197

00:09:26.715 --> 00:09:31.235

Yeah. Um, it's, um, no, I'm not gonna be able to answer it.

198

00:09:31.265 --> 00:09:33.915

It's, uh, lemme tell you. Oh, and you know what?

199

00:09:34.185 --> 00:09:36.835

I've got these in your, in the back of your book,

200

00:09:36.935 --> 00:09:38.395

all these definitions, it's sort of cool.

201

00:09:38.395 --> 00:09:39.395

You can look side by side.

202

00:09:39.395 --> 00:09:41.915

What's your, your team's definition

203

00:09:41.975 --> 00:09:43.915

and what's the rest of, uh, the world.

204

00:09:44.295 --> 00:09:47.835

So this is under 17, slide 17 for national.

205

00:09:47.895 --> 00:09:49.955

You put in there an object in addition

206

00:09:49.955 --> 00:09:51.475

to condition or hazard.

207

00:09:51.895 --> 00:09:54.795

So we're spending a lot of time on this huffer early on,

208

00:09:54.795 --> 00:09:56.115

he came up and said, Hey, what's a hazard?

209

00:09:56.135 --> 00:09:57.515

And we were like jumping right in there.

210

00:09:58.055 --> 00:09:59.195

So we're just pausing here.

211

00:09:59.285 --> 00:10:00.875

Let's, this is our baselining,

212

00:10:00.985 --> 00:10:02.635

this is our agreed, uh, definition.

213

00:10:03.095 --> 00:10:06.115

And, um, what's significant of it is the, uh,

214

00:10:06.535 --> 00:10:07.595

the event part of it.

215

00:10:07.705 --> 00:10:09.275

Okay? That changes things.

216

00:10:09.275 --> 00:10:12.235

If you think of a hazard to include an event

217

00:10:12.775 --> 00:10:16.475

and not just the condition, I think a lot of times we,

218

00:10:16.475 --> 00:10:18.475

we call it an event and not the condition anyway,

219

00:10:18.495 --> 00:10:19.595

but I just throw it out there.

220

00:10:19.785 --> 00:10:21.675

Sort of academic, but there you go.

221

00:10:22.375 --> 00:10:24.475

All right, so a little bit more, let's get some, uh,

222

00:10:24.705 --> 00:10:25.875

some more definitions here.

223

00:10:27.045 --> 00:10:28.955

Those rascally undisciplined

224

00:10:28.955 --> 00:10:30.675

monkeys throwing bananas on the floor.

225

00:10:32.125 --> 00:10:33.755

Let's talk about some definitions here.

226

00:10:34.375 --> 00:10:35.955

And you can follow along in your book if you want.

227

00:10:35.955 --> 00:10:38.275

There are a couple key ones we're we're gonna focus on.

228

00:10:38.275 --> 00:10:40.155

And some are are good to know. Hazard.

229

00:10:42.975 --> 00:10:44.795

So you, we talked about what a hazard is, right?

230

00:10:44.865 --> 00:10:49.235

It's a condition circumstance, an event that leads

231

00:10:49.235 --> 00:10:54.165

to an unplanned or undesired situation that's sort of that,

232

00:10:54.195 --> 00:10:56.605

that he undesired or unplanned thing.

233

00:10:56.985 --> 00:10:58.085

We have another word for it.

234

00:10:58.305 --> 00:11:00.965

And, uh, what, what's that sound like in one word?

235

00:11:02.795 --> 00:11:04.775

What's an undesired, unplanned event

236

00:11:04.775 --> 00:11:06.775

that has people getting hurt or breaking stuff?

237

00:11:07.005 --> 00:11:11.695

Consequence what? Consequence. Consequence. Mishap.

238

00:11:11.695 --> 00:11:15.005

There you go. And that's a, that's a DOD term.

239

00:11:15.025 --> 00:11:18.605

What's in, uh, FAA in 40, 40, 26. They don't have mishap.

240

00:11:18.605 --> 00:11:20.565

What do they call it? An accident.

241

00:11:20.715 --> 00:11:25.705

Okay, that's our undesired or unplanned event.

242

00:11:25.735 --> 00:11:29.505

Okay? But not all mishaps are accidents are the same, right?

243

00:11:29.535 --> 00:11:31.665

There's a flavor of pain, a spectrum

244

00:11:31.975 --> 00:11:34.785

that goes from negligible to death and destruction.

245

00:11:41.525 --> 00:11:44.055

There's generally some level of injury

246

00:11:44.875 --> 00:11:46.535

or damage associated with it, okay?

247

00:11:46.535 --> 00:11:49.015

So that's important to know. Um, okay,

248

00:11:49.015 --> 00:11:50.495

so hazard, we got that out there.

249

00:11:50.995 --> 00:11:54.215

Let me catch up the slide. Accident mishap.

250

00:11:54.225 --> 00:11:55.415

Those definitions are in there.

251

00:11:55.555 --> 00:11:56.575

Not hugely important

252

00:11:56.575 --> 00:11:58.335

to know those definitions, but they're in there for you.

253

00:11:58.795 --> 00:12:01.375

How about risk? And without looking at your book,

254

00:12:02.575 --> 00:12:05.055

I encourage somebody to offer up

255

00:12:05.055 --> 00:12:06.775

what they think risk is in their own terms.

256

00:12:08.575 --> 00:12:09.625

Anybody wanna take a stab?

257
00:12:15.055 --> 00:12:19.165
Likelihood of an accident? Oh, of an accident happening.

258
00:12:19.165 --> 00:12:20.685
Very good. Likely. Anybody else?

259
00:12:22.245 --> 00:12:24.845
Severity. Severity? Okay, cool.

260
00:12:24.945 --> 00:12:26.725
You know, it's, it's merge those together.

261
00:12:26.905 --> 00:12:29.085
We often think of it as this one dimensional thing.

262
00:12:29.345 --> 00:12:31.645
Oh man, it's the probability of something bad happening,

263
00:12:31.945 --> 00:12:33.045
but it's two dimensional.

264
00:12:33.045 --> 00:12:35.685
If you look at the definition, it's really sort of awkward,

265
00:12:36.425 --> 00:12:38.085
but it's, I want you to think of it this way.

266
00:12:38.975 --> 00:12:41.035
Risk is two dimensional

267
00:12:41.575 --> 00:12:44.635
and there's probability and severity.

268
00:12:45.415 --> 00:12:47.475
And if you look at the definition in your

269
00:12:47.475 --> 00:12:49.555
book, somebody wanna read it for me?

270
00:12:49.555 --> 00:12:50.675

You got it up there. The 40, 40, 20

271

00:12:50.855 --> 00:12:54.095

or the first sentence of, uh, the 40 40.

272

00:12:54.115 --> 00:12:57.895

Who wants to read it? You guys

273

00:12:57.895 --> 00:12:59.015

got it in your little geeky thing?

274

00:12:59.115 --> 00:13:00.295

I'm gonna put you on the spot, man.

275

00:13:01.675 --> 00:13:02.755

I need get away from you now

276

00:13:04.455 --> 00:13:06.335

'cause we're gonna have back, let's see,

277

00:13:06.555 --> 00:13:07.895

Claude, can you turn it on right there?

278

00:13:09.785 --> 00:13:11.155

Apologies. Friday

279

00:13:14.725 --> 00:13:15.725

First sentence.

280

00:13:16.015 --> 00:13:17.515

The expression of the impact

281

00:13:17.575 --> 00:13:19.435

of an undesired event in terms

282

00:13:19.535 --> 00:13:21.555

of event severity and probability.

283

00:13:22.355 --> 00:13:25.205

Okay? So severity and probability, two dimensional.

284
00:13:25.265 --> 00:13:26.325
That's your takeaway for that.

285
00:13:26.355 --> 00:13:28.285
Risk is two dimensional severity and probability.

286
00:13:29.435 --> 00:13:31.205
Putting in a sentence would be pretty challenging,

287
00:13:31.265 --> 00:13:33.925
but it's, that's how you, I want you to think of it.

288
00:13:34.425 --> 00:13:38.165
Uh, so risk management, if we don't,

289
00:13:38.225 --> 00:13:40.445
we talked about in our banana peel exercise,

290
00:13:40.445 --> 00:13:41.605
we're gonna do some things to keep me

291
00:13:41.605 --> 00:13:42.645
from breaking my skull.

292
00:13:43.425 --> 00:13:47.725
We, uh, we were gonna put on my sumo suit, we were gonna do

293
00:13:48.425 --> 00:13:50.125
banana peeling exercises.

294
00:13:50.745 --> 00:13:55.035
Uh, what did the, uh, by doing the banana peeling exercise,

295
00:13:55.095 --> 00:13:57.435
we reduced the likelihood of bananas being in here, right?

296
00:13:57.435 --> 00:13:58.675
We reduced the probability

297
00:14:00.195 --> 00:14:01.735

and then by putting on the sumo suit,

298

00:14:01.755 --> 00:14:02.775

we reduced the severity.

299

00:14:04.075 --> 00:14:05.415

So what do we just do there to the risk?

300

00:14:08.045 --> 00:14:10.505

We managed it, right? We made things

301

00:14:10.505 --> 00:14:12.345

that reduced severity and probability.

302

00:14:13.125 --> 00:14:15.825

And now we've got another risk.

303

00:14:16.025 --> 00:14:17.465

I don't know if you guys can see this in the back,

304

00:14:17.765 --> 00:14:20.225

but it's, we just drove the risk down.

305

00:14:21.765 --> 00:14:22.985

So if you are a manager

306

00:14:23.445 --> 00:14:25.785

or an approver of risk management plans,

307

00:14:26.075 --> 00:14:28.945

would you be interested in the initial risk?

308

00:14:30.505 --> 00:14:33.085

Or what do we call this here? Residual risk.

309

00:14:33.405 --> 00:14:34.885

Residual risk or mitigated risk.

310

00:14:35.225 --> 00:14:37.085

So unmitigated risk, residual risk.

311
00:14:37.945 --> 00:14:39.965
If you're at the table signing my test plan,

312
00:14:40.095 --> 00:14:41.125
which one do you wanna know?

313
00:14:42.605 --> 00:14:46.215
Both. Both, yeah. Right? Absolutely.

314
00:14:46.985 --> 00:14:49.665
We're gonna see in some of our orders,

315
00:14:50.365 --> 00:14:54.085
and when we do tpha, we only ask to identify one

316
00:14:54.085 --> 00:14:57.485
or the other best practice that we're gonna ask you

317
00:14:57.485 --> 00:15:00.285
to take back with you is let's make sure we understand

318
00:15:00.515 --> 00:15:02.325
what the unmitigated risk and the residual,

319
00:15:02.585 --> 00:15:04.645
and you might wanna document them in your risk management

320
00:15:04.645 --> 00:15:09.565
plans For your reference

321
00:15:09.565 --> 00:15:12.405
up here, these are the 40, 40, 26 definitions.

322
00:15:12.915 --> 00:15:15.685
Take a look at them. And, uh, I was talking

323
00:15:15.685 --> 00:15:17.325
to Rancho Bernado, where's Rancho?

324
00:15:18.155 --> 00:15:20.445

Okay, Rancho is in the process

325

00:15:20.665 --> 00:15:23.085
of cracking open the 40, 40 26 B

326

00:15:23.775 --> 00:15:26.115
and turning that baby into a Charlie version, right?

327

00:15:27.375 --> 00:15:28.995
And, uh, we were talking at the break,

328

00:15:29.285 --> 00:15:30.955
great opportunity here to socialize.

329

00:15:30.955 --> 00:15:34.355
If we don't like these definitions, it's a good opportunity

330

00:15:34.375 --> 00:15:35.995
to talk about that and what that may look like.

331

00:15:37.655 --> 00:15:39.635
The only one that really is weird to me is,

332

00:15:39.635 --> 00:15:41.075
uh, look at effect.

333

00:15:41.075 --> 00:15:42.275
What do we think of that definition?

334

00:15:47.635 --> 00:15:48.965
Rancher. We can do better with that one.

335

00:15:49.025 --> 00:15:52.045
That's weird, right? And no spears at you at all, but, uh,

336

00:15:52.265 --> 00:15:53.765
and effect is whatever.

337

00:15:53.955 --> 00:15:55.925
It's not a big deal. Big thing is hazard is up there

338
00:15:55.925 --> 00:15:57.885
for our reference and you've got 'em in your book, okay?

339
00:16:06.915 --> 00:16:08.255
In your process, what do you,

340
00:16:08.255 --> 00:16:10.135
what do you think across the enterprise?

341
00:16:10.475 --> 00:16:12.735
One of the very first steps in doing a THA

342
00:16:12.755 --> 00:16:16.595
or test hazard analysis is, I heard it.

343
00:16:17.995 --> 00:16:21.135
Identify, identify risk.

344
00:16:21.275 --> 00:16:23.695
He says, anybody got another thought on that?

345
00:16:26.055 --> 00:16:27.415
Identify hazards. That's right. There you go.

346
00:16:27.415 --> 00:16:29.295
So we identify hazards. Boom, we're right out.

347
00:16:29.765 --> 00:16:31.335
What could go wrong? Known

348
00:16:31.435 --> 00:16:32.815
banana lovers in the conference room.

349
00:16:32.815 --> 00:16:35.855
What could go wrong? Slip out out. Banana peel. We're done.

350
00:16:35.855 --> 00:16:36.895
Right? And we just go to our form,

351
00:16:36.895 --> 00:16:39.255

brick's gonna start filling it out and, and we'll be done.

352

00:16:40.905 --> 00:16:44.235

It's actually the second step in, uh, in the 40 40 26,

353

00:16:44.775 --> 00:16:46.115

we identify test techniques.

354

00:16:46.115 --> 00:16:47.555

So we're gonna go through each of these here in a minute,

355

00:16:48.175 --> 00:16:50.955

but I, I just wanna say this should look very familiar in,

356

00:16:50.955 --> 00:16:52.195

in maybe a different way.

357

00:16:52.195 --> 00:16:54.675

It's broken out. We're gonna identify the test

358

00:16:55.255 --> 00:16:57.435

and the conditions, identify hazards,

359

00:16:57.765 --> 00:17:00.035

break out the causes, look at the effects.

360

00:17:00.325 --> 00:17:02.635

We're gonna do a risk assessment to determine

361

00:17:02.635 --> 00:17:06.725

what the risk level is unmitigated.

362

00:17:06.725 --> 00:17:08.405

And then if we need to, we're gonna put in

363

00:17:08.435 --> 00:17:09.805

mitigations to drive it down.

364

00:17:10.275 --> 00:17:14.255

Okay? I want you to look at this.

365
00:17:14.635 --> 00:17:16.375
We don't really do it in the order of events

366
00:17:16.565 --> 00:17:18.055
that are gonna happen if you're out there

367
00:17:18.055 --> 00:17:19.215
doing a flight test, right?

368
00:17:20.515 --> 00:17:23.175
We talk about identify test conditions.

369
00:17:23.215 --> 00:17:24.615
I call it initial conditions, okay?

370
00:17:25.365 --> 00:17:27.295
It's a condition or an action.

371
00:17:29.035 --> 00:17:30.245
Push the big ready easy button.

372
00:17:30.555 --> 00:17:32.165
Then what we identify the hazard,

373
00:17:34.525 --> 00:17:39.095
what's next causes?

374
00:17:40.315 --> 00:17:42.965
And then what effects.

375
00:17:46.215 --> 00:17:48.475
So we said a hazard can be an event, a cause and is event.

376
00:17:49.265 --> 00:17:50.845
So it's an event that leads to an event

377
00:17:51.275 --> 00:17:52.285
that leads to something else.

378
00:17:52.905 --> 00:17:54.885

And then usually when we're doing this, there's some level

379

00:17:54.945 --> 00:17:59.075
of damage or injury, right?

380

00:18:00.045 --> 00:18:01.945
So if I said to you, Hey, I'm gonna relate

381

00:18:01.945 --> 00:18:05.305
to you a narrative that's has a beginning and an end.

382

00:18:05.575 --> 00:18:06.785
It's at you gotta beginning

383

00:18:06.885 --> 00:18:08.745
and then you have one event that leads to another,

384

00:18:09.175 --> 00:18:12.025
another event, a series of events that has an ending.

385

00:18:13.445 --> 00:18:17.885
What would you call that? A okay, what is it?

386

00:18:18.405 --> 00:18:20.085
SAP mishap sequence. Okay.

387

00:18:20.275 --> 00:18:22.525
What if it was your, uh, 3-year-old child

388

00:18:22.585 --> 00:18:25.165
and you're putting them to bed, I'm gonna take you upstairs

389

00:18:25.165 --> 00:18:27.565
and tell you something that has I is it now

390

00:18:28.275 --> 00:18:29.765
it's a story, right?

391

00:18:30.305 --> 00:18:31.605
All we're doing is telling a story.

392

00:18:32.495 --> 00:18:34.275

You know, we sort of start in the middle and go backwards

393

00:18:34.275 --> 00:18:36.195

and forwards and it gets sort of weird and we overthink it.

394

00:18:36.195 --> 00:18:37.755

Like, what's a hazard? What's a definition?

395

00:18:38.045 --> 00:18:39.795

Let's just break it down and keep it simple.

396

00:18:39.935 --> 00:18:41.075

And think of it as a story.

397

00:18:41.925 --> 00:18:44.145

And this is maybe a little different paradigm shift

398

00:18:44.145 --> 00:18:45.225

we're, we're offering to you.

399

00:18:45.405 --> 00:18:48.345

You know, we got step one, test technique, step two hazard.

400

00:18:48.515 --> 00:18:50.465

Maybe think of this as step 1.5,

401

00:18:51.525 --> 00:18:53.065

but if you can think of it this way,

402

00:18:53.665 --> 00:18:55.465

I think it'll keep us from getting

403

00:18:55.465 --> 00:18:56.585

ahead of ourselves sometimes.

404

00:18:56.605 --> 00:18:59.665

And just saying what a hazard is and being married to it.

405

00:19:00.165 --> 00:19:02.465

And then you get to the ERB or the safety review board

406

00:19:02.845 --> 00:19:04.825

and folks start saying that hazard that maybe

407

00:19:04.825 --> 00:19:06.265

that's an effect or maybe it's in a cause

408

00:19:06.365 --> 00:19:07.305

or something like, so

409

00:19:07.305 --> 00:19:08.225

we're just gonna slow down a little bit.

410

00:19:08.225 --> 00:19:09.585

Think of it as a story, okay?

411

00:19:14.045 --> 00:19:15.665

Do you remember when I was talking about the,

412

00:19:15.665 --> 00:19:18.535

uh, the banana peel?

413

00:19:19.235 --> 00:19:21.015

Um, you know, I said we've got known

414

00:19:21.595 --> 00:19:23.775

banana lovers in the conference room.

415

00:19:24.445 --> 00:19:26.335

This the condition or the technique, right?

416

00:19:26.475 --> 00:19:28.175

And I, and then what was the question I asked you guys?

417

00:19:28.975 --> 00:19:33.905

I said, what, what could happen? What could go wrong?

418

00:19:34.805 --> 00:19:38.275

So as you're telling the story, oh, let me catch up here.

419
00:19:38.845 --> 00:19:40.755
There you go. What could go wrong?

420
00:19:42.835 --> 00:19:44.335
And what we want you to do when you get in your teams

421
00:19:44.435 --> 00:19:47.375
or when you're doing tpha, it's just go to the whiteboard

422
00:19:47.375 --> 00:19:49.095
with your team and start saying what could go wrong?

423
00:19:49.475 --> 00:19:51.015
And there might be a lot of what's out there.

424
00:19:51.265 --> 00:19:55.135
There might be a whole lot of things that could go wrong.

425
00:19:55.355 --> 00:19:57.775
So what could go wrong? And

426
00:19:57.775 --> 00:19:59.055
uh, somebody said you might slip.

427
00:19:59.075 --> 00:20:00.055
And then what did I ask you?

428
00:20:01.055 --> 00:20:05.305
I I said, why?

429
00:20:07.115 --> 00:20:09.575
And that takes us back upstream. Why would I slip on that?

430
00:20:09.935 --> 00:20:11.015
'cause there are banana peels on the ground.

431
00:20:11.075 --> 00:20:12.375
Why are there banana peels on the ground?

432
00:20:12.695 --> 00:20:14.415

'cause we have undisciplined banana eaters in the room.

433

00:20:14.555 --> 00:20:17.575

Ah, okay, that's not good. And then what did I ask?

434

00:20:20.285 --> 00:20:24.155

So what, so what if I,

435

00:20:24.425 --> 00:20:25.435

what, so what if I slip?

436

00:20:26.295 --> 00:20:28.425

We said you're gonna fall. So what if I fall?

437

00:20:28.805 --> 00:20:31.625

You break your hip. So what if I break my hip?

438

00:20:31.995 --> 00:20:35.025

We've got damage or injury. You see how that works?

439

00:20:35.565 --> 00:20:40.325

So you got, when we tell,

440

00:20:41.265 --> 00:20:43.685

or when we're doing tpha, we're telling a story gang.

441

00:20:44.785 --> 00:20:46.565

And in flight tests, the stories we tell,

442

00:20:46.915 --> 00:20:48.245

they're like tragedies, right?

443

00:20:48.355 --> 00:20:51.445

It's like the Greek tragedy. They end in misery and pain.

444

00:20:52.145 --> 00:20:53.645

The happy stories, we don't bother telling

445

00:20:53.925 --> 00:20:56.525

'cause it's, it's low risk or there's no risk at all, right?

446

00:20:56.985 --> 00:20:58.805

So I want you to think about it as telling a story.

447

00:20:58.875 --> 00:21:00.845

What could go wrong? Why so what?

448

00:21:01.065 --> 00:21:04.875

And then tie it to some, some end state that has to do with,

449

00:21:05.075 --> 00:21:07.155

um, you know, damage or injury.

450

00:21:07.655 --> 00:21:09.955

So as we look at these techniques, I'll pause there.

451

00:21:09.955 --> 00:21:11.555

Any questions on that? Is this crazy talk?

452

00:21:12.405 --> 00:21:13.685

'cause I'm gonna bring it all together right here.

453

00:21:15.785 --> 00:21:18.035

Step one, we're gonna identify, we're just gonna go

454

00:21:18.035 --> 00:21:19.675

through each of these and I'll tell you, we were talking

455

00:21:19.695 --> 00:21:21.835

as we were putting this together, this is not, uh,

456

00:21:22.265 --> 00:21:24.715

risk management 1 0 1 or T a's 1 0 1.

457

00:21:25.025 --> 00:21:26.635

This isn't test pilot school.

458

00:21:26.635 --> 00:21:28.115

Johnny o's introducing them to us.

459

00:21:28.175 --> 00:21:29.675

We are, this is a higher level, okay?

460

00:21:30.015 --> 00:21:31.635

So we can think of it as a higher level

461

00:21:31.695 --> 00:21:34.555

and probably move through these a little quicker,

462

00:21:34.655 --> 00:21:36.515

or we can talk about 'em if you have something to offer.

463

00:21:37.255 --> 00:21:38.915

But with this identify the test technique.

464

00:21:38.915 --> 00:21:41.235

I want you to think about it. It's not just, you know,

465

00:21:41.235 --> 00:21:43.675

flight in on icing or VMU testing.

466

00:21:43.935 --> 00:21:45.115

It can be a condition.

467

00:21:45.275 --> 00:21:47.275

I, so I guess fike is a condition, right?

468

00:21:47.695 --> 00:21:51.105

Um, just like a condition is teaching in a conference room

469

00:21:51.105 --> 00:21:52.105

with known banana lovers.

470

00:21:52.135 --> 00:21:53.945

Okay? So there's that condition, keep that in mind.

471

00:21:54.915 --> 00:21:56.375

Um, and configuration as well.

472

00:21:56.375 --> 00:21:57.775

Maybe the first time you're doing that.

473

00:21:57.915 --> 00:21:59.455

So that, that's pretty, pretty basic,

474

00:21:59.455 --> 00:22:00.855

but it's a starting point of our story.

475

00:22:02.835 --> 00:22:03.965

Then we go to the so what

476

00:22:03.965 --> 00:22:05.565

and look up there what adverse events

477

00:22:05.565 --> 00:22:06.845

might happen when doing the test.

478

00:22:07.165 --> 00:22:09.915

I said that more simply as what could go wrong.

479

00:22:12.105 --> 00:22:13.805

We come up with these, um, you know,

480

00:22:14.025 --> 00:22:15.805

we talked about our different levels of experience.

481

00:22:15.995 --> 00:22:17.445

Some people have been doing this for 20 years.

482

00:22:17.445 --> 00:22:22.365

You've seen it, right? Is there a, could there be a downside

483

00:22:22.365 --> 00:22:23.645

to having done it for 20 years?

484

00:22:24.235 --> 00:22:28.115

Next time you go out and you do a t cast test, you just know

485

00:22:28.115 --> 00:22:29.355

what the hazards are gonna be, right?

486

00:22:29.595 --> 00:22:32.565

'cause you've done it so much. So we need to sort

487

00:22:32.565 --> 00:22:34.165

of slow down and not just be married to

488

00:22:34.755 --> 00:22:36.605

what happened in the past, but tailor each

489

00:22:36.605 --> 00:22:38.165

of these exercises to our event.

490

00:22:41.505 --> 00:22:46.305

So what could go wrong next? Why?

491

00:22:46.705 --> 00:22:48.225

I said why would that happen?

492

00:22:49.765 --> 00:22:53.705

And this is out of, um, just some of these things.

493

00:22:53.705 --> 00:22:55.625

This was a list outta I think the air force instruction,

494

00:22:55.625 --> 00:22:57.425

you know, and, and there are obviously other things,

495

00:22:57.445 --> 00:22:59.105

but it could be hardware, it could be software,

496

00:22:59.325 --> 00:23:00.945

it could be our, our operator, air.

497

00:23:01.235 --> 00:23:02.585

Those are just some things to think about.

498

00:23:02.605 --> 00:23:04.105

And we're gonna talk about that a little bit

499

00:23:04.105 --> 00:23:05.225

more I think later on.

500
00:23:05.565 --> 00:23:06.745
But, uh, these are the causes

501
00:23:06.745 --> 00:23:08.065
and they're gonna be, I don't like

502
00:23:08.065 --> 00:23:10.865
that this says list the cause it implies there's one

503
00:23:12.005 --> 00:23:13.515
often there are many causes, right?

504
00:23:14.735 --> 00:23:16.275
And something we're gonna ask you to do

505
00:23:16.275 --> 00:23:18.955
and think about is, I, uh, enumerating those, for lack

506
00:23:18.955 --> 00:23:20.155
of a better word, but for each cause.

507
00:23:20.425 --> 00:23:23.355
Make it a, B, C, D or 1, 2, 3. And why do we wanna do that?

508
00:23:23.595 --> 00:23:25.995
Break 'em out and identify them individually.

509
00:23:26.595 --> 00:23:27.805
It's a little foreshadowing here.

510
00:23:27.805 --> 00:23:29.005
Anybody know why we might do that?

511
00:23:33.975 --> 00:23:35.905
Awesome. What's your name? Alex.

512
00:23:36.145 --> 00:23:38.715
Alex said so that when we come up with mitigations,

513
00:23:38.775 --> 00:23:40.555

we can tie them to a specific cause.

514

00:23:41.665 --> 00:23:46.365

Absolutely. So list cause

515

00:23:46.365 --> 00:23:47.965

of the hazard, not the unplanned.

516

00:23:48.785 --> 00:23:50.205

We can get mixed up here, right?

517

00:23:50.705 --> 00:23:54.525

We spent a lot of time talking in other venues about mixing

518

00:23:54.525 --> 00:23:55.805

up causes, hazards, and effects.

519

00:23:58.065 --> 00:23:59.045

Um, and here's the effect.

520

00:24:03.315 --> 00:24:06.165

Read that. Uh, first bullet, it should be related to injury.

521

00:24:06.165 --> 00:24:09.345

Loss of life or damage. What's that mean?

522

00:24:10.855 --> 00:24:13.295

I pulled that right out of the order. Does any, what's that?

523

00:24:13.355 --> 00:24:16.525

How do you guys interpret that? Say again.

524

00:24:19.635 --> 00:24:21.045

Yeah, bent metal hurt people.

525

00:24:21.585 --> 00:24:25.805

Um, you know, for JSF there was, the policy was in that, um,

526

00:24:26.385 --> 00:24:29.445

in the effect box, it had to be verbatim.

527

00:24:30.795 --> 00:24:33.045

Like loss of life or loss of aircraft.

528

00:24:33.115 --> 00:24:34.725

That was the terminology we had to use.

529

00:24:35.205 --> 00:24:36.245

I felt like that was sort

530

00:24:36.245 --> 00:24:37.685

of getting a little ahead of the game.

531

00:24:38.415 --> 00:24:41.085

Often you might have, um, some,

532

00:24:41.235 --> 00:24:43.765

some something in the sequence of events that's before that.

533

00:24:45.015 --> 00:24:46.275

And, and tied to that, we'll have some

534

00:24:46.275 --> 00:24:47.595

examples. Yes, loss of

535

00:24:47.595 --> 00:24:50.195

Data is Sure.

536

00:24:53.725 --> 00:24:55.745

Uh, interesting. Do you guys agree with that?

537

00:24:55.895 --> 00:24:57.185

Loss of data is a hazard.

538

00:25:04.575 --> 00:25:09.335

Yeah. Programmatic risk maybe. Yeah, that'd be interesting.

539

00:25:09.355 --> 00:25:11.615

We compare that to our definitions, you know, um,

540

00:25:11.925 --> 00:25:13.175

there's definitely data risk,

541

00:25:13.235 --> 00:25:15.615

but are we, are we hurting people or no?

542

00:25:15.615 --> 00:25:16.895

Maybe not. Alright,

543

00:25:16.895 --> 00:25:18.415

so we're getting, I know it's getting a little slow.

544

00:25:18.415 --> 00:25:20.215

We're gonna, uh, make this interesting here in a second.

545

00:25:20.365 --> 00:25:21.895

Okay? Take a look at this,

546

00:25:21.895 --> 00:25:24.015

read this on your own and digest it.

547

00:25:39.025 --> 00:25:40.685

All right? Now watch this. This is cool.

548

00:25:45.775 --> 00:25:48.595

You wanna see that again? We, we get these jumbled.

549

00:25:48.595 --> 00:25:51.935

Do do we get these jumbled up? Lemme put it that way. Yeah.

550

00:25:51.955 --> 00:25:55.215

What's any common offenders, any stories,

551

00:25:56.375 --> 00:25:57.635

causes and hazards?

552

00:25:57.655 --> 00:26:01.875

Do we get those mixed up? I think we do.

553

00:26:01.875 --> 00:26:05.155

And it's because we may not understand where we wanna draw

554
00:26:05.155 --> 00:26:07.395
that box around what the hazard is when we tell our story.

555
00:26:07.935 --> 00:26:09.275
And that's where a lot of confusion is.

556
00:26:10.175 --> 00:26:14.275
I'm gonna go back to our banana peel thing

557
00:26:14.895 --> 00:26:16.395
and uh, and sort of talk through

558
00:26:19.045 --> 00:26:20.175
what this looks like a little bit.

559
00:26:20.285 --> 00:26:22.775
Okay? So we had, uh,

560
00:26:22.775 --> 00:26:24.535
known banana lovers in the conference room.

561
00:26:24.625 --> 00:26:25.855
We're gonna sort of geek this out.

562
00:26:25.885 --> 00:26:27.015
Like I, like, I would like you

563
00:26:27.015 --> 00:26:28.935
to do your tpha when you're in your groups, okay?

564
00:26:30.315 --> 00:26:31.695
So our initial test technique,

565
00:26:31.695 --> 00:26:33.335
known banana lovers in the conference room.

566
00:26:35.115 --> 00:26:36.975
And I said, what could go wrong and what'd you say?

567
00:26:40.435 --> 00:26:42.005

Slip. Okay,

568

00:26:44.585 --> 00:26:48.365

why would I slip, peel on the floor.

569

00:26:48.365 --> 00:26:53.055

Good job. Why would there be banana peel on the floor?

570

00:26:56.855 --> 00:27:01.485

Drop? I like undisciplined banana eaters. Can we do that?

571

00:27:01.715 --> 00:27:03.245

Just 'cause I'm a marine. I like discipline.

572

00:27:03.265 --> 00:27:04.125

But somebody dropped it.

573

00:27:04.155 --> 00:27:05.605

Undisciplined and then they dropped it.

574

00:27:05.605 --> 00:27:07.525

How's that? Brock dropped.

575

00:27:08.935 --> 00:27:11.955

So when you say they're undisciplined, then that leads

576

00:27:12.375 --> 00:27:13.375

One. Oh, okay.

577

00:27:13.375 --> 00:27:15.765

Operator error, right? Yeah,

578

00:27:16.315 --> 00:27:17.445

There's no trash cans.

579

00:27:17.445 --> 00:27:19.405

They may be super disciplined, but there's no

580

00:27:19.405 --> 00:27:20.405

Option. Alright,

581
00:27:20.405 --> 00:27:22.365
you're, you're right. I'm, that's a rabbit hole.

582
00:27:22.365 --> 00:27:27.245
I don't want to go down. So they're dropped on the

583
00:27:27.245 --> 00:27:31.415
floor, um, slip.

584
00:27:31.515 --> 00:27:36.085
So what? And we said fall and now they're different.

585
00:27:36.085 --> 00:27:37.685
This is like a choose your own adventure, right?

586
00:27:38.385 --> 00:27:39.845
We said I was gonna break my hip.

587
00:27:40.235 --> 00:27:43.605
What are some other outcomes be? Break. Break, Mike.

588
00:27:44.205 --> 00:27:45.365
I could be embarrassed, right?

589
00:27:47.545 --> 00:27:51.815
Um, when you slip, what do you do? Put your hand down.

590
00:27:52.705 --> 00:27:55.795
Okay, so what, okay, break my wrist.

591
00:27:56.255 --> 00:27:59.155
Um, but when your kids are out there riding on roller

592
00:27:59.255 --> 00:28:01.355
skates, you give 'em wrist things

593
00:28:01.355 --> 00:28:02.795
and elbow things, what else do you make 'em wear?

594
00:28:02.865 --> 00:28:04.275

Well, when they're riding their bike, a helmet, right?

595

00:28:04.275 --> 00:28:08.565

So could I, could I fall and hit my head? Yeah. Okay.

596

00:28:08.625 --> 00:28:11.205

So, um, embarrassed, that's what that is there.

597

00:28:11.585 --> 00:28:13.285

Um, land on

598

00:28:15.145 --> 00:28:16.605

arm or head.

599

00:28:16.875 --> 00:28:18.925

Okay? This may be hard to follow,

600

00:28:18.945 --> 00:28:20.525

but you, you choose your own adventure.

601

00:28:21.065 --> 00:28:23.485

If I get embarrassed, no big deal, right?

602

00:28:24.455 --> 00:28:26.765

Negligible outcome. What if I land on my arm?

603

00:28:29.515 --> 00:28:33.065

Broken arm? What if I land on my head?

604

00:28:35.975 --> 00:28:39.885

Concussion. Okay, so now we got more or death, right?

605

00:28:40.355 --> 00:28:43.205

Falling from five feet, you could break your head.

606

00:28:43.385 --> 00:28:47.725

You could break head. Okay, we have an important

607

00:28:48.365 --> 00:28:50.245

decision here and this may be a discussion point.

608

00:28:51.255 --> 00:28:53.765

Which one of these are we gonna put in our THA?

609

00:28:55.815 --> 00:29:00.375

All of us. All of 'em. Who said that?

610

00:29:01.865 --> 00:29:03.485

All of 'em. How do you do that?

611

00:29:03.485 --> 00:29:06.005

There's no room on my matrix for all of 'em. Well, I would,

612

00:29:08.115 --> 00:29:10.165

I would say, or that,

613

00:29:13.915 --> 00:29:18.415

Okay. Yeah. Now

614

00:29:18.415 --> 00:29:20.295

You started finding Interesting.

615

00:29:21.735 --> 00:29:23.595

Um, okay.

616

00:29:24.635 --> 00:29:27.935

Or you threw out embarrassed, not more likely,

617

00:29:30.985 --> 00:29:31.985

Right? Huffer

618

00:29:31.985 --> 00:29:33.775

said something and I don't want to get it wrong.

619

00:29:33.955 --> 00:29:37.645

You said put the, the worst case down

620

00:29:39.535 --> 00:29:40.995

is that for environment.

621

00:29:41.065 --> 00:29:44.125

For the environment. So that could be based on probability

622

00:29:44.225 --> 00:29:46.565

and severity and we're gonna get to the matrix there, right?

623

00:29:47.265 --> 00:29:49.165

Um, and you, I like the word over here.

624

00:29:49.235 --> 00:29:50.765

Realistic, reasonable.

625

00:29:50.815 --> 00:29:54.605

Reasonable, reasonable, reasonable.

626

00:29:54.605 --> 00:29:59.045

Worst case, worst, credible. That's what I like.

627

00:29:59.245 --> 00:30:01.285

I use the term realistic and believable.

628

00:30:01.415 --> 00:30:03.285

Worst, credible, worst, reasonable.

629

00:30:03.825 --> 00:30:05.565

That's sort of what, what I use huffer

630

00:30:05.565 --> 00:30:06.765

and I'm curious your thoughts on that.

631

00:30:08.955 --> 00:30:11.805

Yes. Case.

632

00:30:13.115 --> 00:30:15.725

Yeah. Well, it's worst reasonable,

633

00:30:17.015 --> 00:30:18.115

UK worst.

634

00:30:18.745 --> 00:30:19.745

Credible.

635
00:30:22.165 --> 00:30:23.685
Don't put all of them down

636
00:30:24.775 --> 00:30:26.915
all then when you search for mitigation.

637
00:30:29.725 --> 00:30:30.725
Interesting. Just put one Down

638
00:30:32.795 --> 00:30:35.305
Uhhuh, and You're not gonna think of something more.

639
00:30:36.595 --> 00:30:39.695
Yeah. Those different

640
00:30:39.695 --> 00:30:41.055
Types of, so you put 'em all down.

641
00:30:41.055 --> 00:30:44.715
Is that, who else would put 'em all down? Okay, who would,

642
00:30:46.215 --> 00:30:49.315
So I, I think we, when you're assessing,

643
00:30:49.315 --> 00:30:51.435
when you're doing the hazard analysis, you would consider

644
00:30:52.015 --> 00:30:53.195
any potential outcome.

645
00:30:53.655 --> 00:30:56.635
But when you're actually doing your risk assessment itself,

646
00:30:57.255 --> 00:30:58.595
you, you choose Right.

647
00:30:58.745 --> 00:31:01.735
Most reasonable, credible outcome that that,

648
00:31:01.755 --> 00:31:04.455

but when you do your analysis, you shouldn't eliminate them

649

00:31:04.525 --> 00:31:08.035

because if you, you may miss potential mitigations that,

650

00:31:08.365 --> 00:31:10.705

you know, you can have a mitigation that eliminates the risk

651

00:31:10.705 --> 00:31:11.985

At higher. Right? And

652

00:31:11.985 --> 00:31:14.465

If you skip that because you're focusing on

653

00:31:14.465 --> 00:31:16.465

what you're gonna do your risk assessment

654

00:31:16.565 --> 00:31:18.305

on, you've missed the vote. Yeah.

655

00:31:18.305 --> 00:31:21.225

So I feel like at this stage, you all of

656

00:31:21.805 --> 00:31:24.465

any potential effect then when,

657

00:31:24.575 --> 00:31:26.785

when doing your risk analysis, you kind of have to,

658

00:31:26.805 --> 00:31:28.065

or sorry, your risk assessment

659

00:31:28.125 --> 00:31:29.025

Itself. Yeah. Right?

660

00:31:29.365 --> 00:31:32.065

You have to choose one to say, okay, I'm gonna do the,

661

00:31:32.575 --> 00:31:36.715

the, the most likely one severity of that,

662
00:31:37.255 --> 00:31:39.575
or I'm gonna do, you know, the highest severity.

663
00:31:40.045 --> 00:31:41.855
Yeah. And that's The, the one I'm gonna propose

664
00:31:41.855 --> 00:31:43.715
to, et cetera.

665
00:31:43.775 --> 00:31:48.015
Yep. The most credible company.

666
00:31:51.375 --> 00:31:54.705
Yeah. Right. And, and we're gonna get there. I know. Yeah.

667
00:31:55.285 --> 00:32:00.025
Yep, yep. For, for the condition.

668
00:32:00.245 --> 00:32:01.385
So, you know what I'm thinking about

669
00:32:01.485 --> 00:32:03.705
and I wonder if any of you are, it's like, how do I put all

670
00:32:03.705 --> 00:32:06.025
that on my little template that I've,

671
00:32:06.095 --> 00:32:07.545
that my organization uses?

672
00:32:07.545 --> 00:32:08.545
How do I put 'em all in there?

673
00:32:09.055 --> 00:32:10.745
Anybody else thinking that like,

674
00:32:10.865 --> 00:32:12.065
'cause there's only room for an effect

675
00:32:12.065 --> 00:32:14.065

and then I have to tie that, you know, it's

676

00:32:14.585 --> 00:32:15.585

Multiple effect.

677

00:32:17.525 --> 00:32:20.545

Another technique. A little more descrip

678

00:32:22.175 --> 00:32:23.975

have a fall,

679

00:32:25.105 --> 00:32:26.105

Fall head.

680

00:32:26.135 --> 00:32:28.835

Ah, interesting. So would you do a separate THA

681

00:32:28.895 --> 00:32:30.675

for the different possibilities?

682

00:32:32.395 --> 00:32:33.495

Uh, yeah.

683

00:32:39.835 --> 00:32:41.495

Uh, interesting. So you have multiple

684

00:32:41.495 --> 00:32:42.775

hazards on one t, HA.

685

00:32:43.125 --> 00:32:44.215

Does anybody else do that?

686

00:32:44.755 --> 00:32:44.975

Uh,

687

00:33:28.885 --> 00:33:29.885

Yeah. Are are you Rod?

688

00:33:29.885 --> 00:33:30.975

Yeah. Yeah.

689

00:33:31.315 --> 00:33:34.695

So Rod suggests that we put on a THA

690

00:33:35.235 --> 00:33:38.055

all the hazards associated with a test technique.

691

00:33:38.365 --> 00:33:42.945

Does anybody agree or disagree with that preference? Okay.

692

00:33:43.255 --> 00:33:47.365

Does your policy allow for that? Yes.

693

00:33:49.115 --> 00:33:52.685

So start with pre unnecessary risks.

694

00:34:05.325 --> 00:34:09.025

Yep. Yep. Okay. I wanna move on.

695

00:34:09.225 --> 00:34:10.305

That's a parking lot topic.

696

00:34:10.335 --> 00:34:13.745

There's some policies that say one hazard, one THA.

697

00:34:13.925 --> 00:34:15.145

And that's been my experience.

698

00:34:15.925 --> 00:34:19.555

Um, and, uh, so Got it, rod, on the record.

699

00:34:19.715 --> 00:34:21.275

I I'd like to hear more on

700

00:34:21.275 --> 00:34:22.355

that, but we're, we're gonna keep moving.

701

00:34:22.375 --> 00:34:23.375

One last comment.

702

00:34:26.225 --> 00:34:26.715

Hazards.

703

00:34:32.075 --> 00:34:36.665

Exactly, exactly. I agree. Yep. Yeah, I agree.

704

00:34:37.205 --> 00:34:39.745

Can you repeat that? Oh, he's, um, he said,

705

00:34:40.455 --> 00:34:44.385

well, your point right back

706

00:34:44.385 --> 00:34:47.065

To the example, put a helmet on your

707

00:34:47.065 --> 00:34:48.065

Kid. Here he goes, put the

708

00:34:48.065 --> 00:34:48.505

elbow and knee

709

00:34:48.505 --> 00:34:50.745

Pads on, Say the third time, David.

710

00:34:51.095 --> 00:34:52.265

It's good 'cause it's good. And

711

00:34:52.265 --> 00:34:53.945

For, for a third time, just relating it back to his,

712

00:34:54.005 --> 00:34:55.785

his whiteboard up there, that's not really a whiteboard.

713

00:34:55.965 --> 00:34:58.105

Um, if you focus only on the worst reasonable hazard,

714

00:34:58.105 --> 00:34:59.185

you'll put a helmet on your kid,

715

00:34:59.185 --> 00:35:00.585

but not the elbow and knee pads.

716

00:35:00.645 --> 00:35:02.385

So you've mitigated the worst risk,

717

00:35:02.385 --> 00:35:04.665

but you're opening yourself up to some of the other hazards.

718

00:35:04.665 --> 00:35:05.905

Yeah. Or effects.

719

00:35:06.575 --> 00:35:10.185

Okay, We're gonna keep moving,

720

00:35:11.085 --> 00:35:12.385

but for the sake of right now,

721

00:35:12.445 --> 00:35:14.705

if you were gonna pick one most likely scenario

722

00:35:14.705 --> 00:35:18.545

or whatever scenario, um, embarrassed, negligible

723

00:35:19.305 --> 00:35:23.555

outcome, land on my arm, break my arm, land on my head,

724

00:35:23.555 --> 00:35:25.535

and break my head and die.

725

00:35:26.495 --> 00:35:27.065

What do you think?

726

00:35:39.145 --> 00:35:43.905

Why not? I, I think that's good. Okay.

727

00:35:43.905 --> 00:35:46.305

And when we get to the matrix, we can sort

728

00:35:46.305 --> 00:35:47.385

of talk through that, that may help.

729

00:35:47.925 --> 00:35:50.225

So what I've got here is a little exercise for you.

730

00:35:50.425 --> 00:35:52.145

Breakout your, your little device. Can you guys see?

731

00:35:52.185 --> 00:35:54.545

I feel bad. I mean, it's just your,

732

00:35:54.645 --> 00:35:56.345

you got the cheap seat obstructed view.

733

00:36:00.565 --> 00:36:05.255

Yeah. Right? So using this sort of concept of, um, you know,

734

00:36:05.255 --> 00:36:06.855

telling the story, keeping in mind

735

00:36:07.395 --> 00:36:09.535

and we've got, you know, causes hazard effect

736

00:36:09.755 --> 00:36:11.275

and then the damage

737

00:36:11.275 --> 00:36:14.835

or injury, just to sort of sharpen our claws a little bit,

738

00:36:15.225 --> 00:36:19.785

take a look at this scenario and let me let

739

00:36:19.785 --> 00:36:21.305

or vote what you think the hazard is.

740

00:36:21.575 --> 00:36:23.265

Okay? Can, sorry guys,

741

00:36:36.715 --> 00:36:37.925

that means we don't get any music.

742

00:36:38.345 --> 00:36:38.565

It

743

00:37:07.055 --> 00:37:08.475
having another Fletch moment

744

00:37:19.455 --> 00:37:19.675
Now

745

00:37:44.595 --> 00:37:45.925
everybody got dropped off?

746

00:37:46.515 --> 00:37:49.885
Yeah. Oh, is that so we could keep rolling. Um,

747

00:37:55.375 --> 00:37:58.355
I'm a little scared to ask, but what do you think?

748

00:38:01.185 --> 00:38:04.975
Yeah. Oh, its, I'll put you on the spot straight to D Okay.

749

00:38:05.715 --> 00:38:10.125
You think that's the hazard? Yeah. What's the hazard?

750

00:38:12.485 --> 00:38:16.725
A, B, C, loss of control.

751

00:38:18.485 --> 00:38:20.215
Anybody know where I got this example from?

752

00:38:21.475 --> 00:38:24.775
Cory's seen my shtick before. Uh, from where?

753

00:38:25.885 --> 00:38:27.695
Yeah, these are the examples in the 40, 40 20.

754

00:38:27.835 --> 00:38:29.095
And, and nothing against that.

755

00:38:29.095 --> 00:38:30.335
It's just cool to go back to that

756

00:38:30.335 --> 00:38:31.935

and see what the quote book answer is.

757

00:38:32.555 --> 00:38:37.195

And, uh, well now

758

00:38:37.195 --> 00:38:38.435

we're, I don't know if I have control.

759

00:38:38.435 --> 00:38:40.195

Here it is. Drum roll.

760

00:38:40.195 --> 00:38:42.675

What's the, what's the, uh, 40 40 26 say?

761

00:38:46.135 --> 00:38:47.985

It's loss of control. Yeah. Okay.

762

00:38:48.885 --> 00:38:53.425

Um, so, you know, something we didn't talk about

763

00:38:53.425 --> 00:38:54.585

before too is, uh,

764

00:38:54.585 --> 00:38:56.425

and something huffer brought to the discussion is

765

00:38:56.675 --> 00:38:58.705

where is the loss of safety control?

766

00:38:59.045 --> 00:39:00.545

And as you're going through your narrative,

767

00:39:01.325 --> 00:39:02.785

that's another good thing to think of.

768

00:39:03.205 --> 00:39:05.805

And in this scenario, do you

769

00:39:05.805 --> 00:39:06.925

wanna explain what you mean by that?

770
00:39:07.145 --> 00:39:09.165
Or shall I try? Why don't you do it?

771
00:39:09.165 --> 00:39:10.845
What's loss of safety control? Huffer?

772
00:39:11.755 --> 00:39:12.045
Well,

773
00:39:16.945 --> 00:39:21.285
You've exhausted your mitigations and, and, um, injury

774
00:39:21.285 --> 00:39:23.005
and da uh, damage and injury is inevitable.

775
00:39:25.325 --> 00:39:27.585
Are we still in control safety wise?

776
00:39:28.655 --> 00:39:32.145
When we at, at step A, we're still in the loop, right?

777
00:39:32.795 --> 00:39:36.765
Where are we outta the loop at B And we're not saying that's

778
00:39:36.765 --> 00:39:38.765
where the hazard is, but it's a good put

779
00:39:38.765 --> 00:39:41.005
that in your consideration on where do we put the box around

780
00:39:41.005 --> 00:39:42.045
what the hazard is here?

781
00:39:42.635 --> 00:39:44.805
Okay, Claude, how we doing bud?

782
00:39:47.515 --> 00:39:51.495
I'm still Claude. You know why I'm locked out? Okay. Yeah.

783
00:40:03.635 --> 00:40:06.095

So Oxy is the risk manager for the hotel.

784

00:40:06.465 --> 00:40:08.775

Since you guys are a bunch of undisciplined monkeys,

785

00:40:09.415 --> 00:40:12.055

I want you to mitigate to the broken head.

786

00:40:12.275 --> 00:40:13.335

Broken head, okay?

787

00:40:14.635 --> 00:40:17.095

So, so based on this discussion then what we just did there,

788

00:40:17.225 --> 00:40:19.945

where do you guys think the hazard is in our

789

00:40:20.555 --> 00:40:22.945

known bananas in conference room situation?

790

00:40:23.535 --> 00:40:25.665

Slip. Slip or fall. Fall

791

00:40:28.585 --> 00:40:30.475

Slip or fall Slip or fall

792

00:40:31.225 --> 00:40:32.225

Slip. Could

793

00:40:32.225 --> 00:40:36.035

it be slip and fault? Sometimes?

794

00:40:36.055 --> 00:40:37.635

Do we sort of, they're implied steps

795

00:40:37.635 --> 00:40:40.435

that we don't necessarily put in our little matrix.

796

00:40:40.435 --> 00:40:43.835

Sometimes we do. Do we ever bundle causes together?

797

00:40:44.895 --> 00:40:47.795

Do we ever bundle effects? Yeah, we do. You can bundle 'em.

798

00:40:47.795 --> 00:40:49.275

That's where that artistic thing comes in.

799

00:40:49.275 --> 00:40:51.755

It's how you're gonna communicate this sequence

800

00:40:51.755 --> 00:40:54.355

of events to, to the audience.

801

00:40:54.425 --> 00:40:58.305

Okay? Um, I think it's in here too.

802

00:41:00.085 --> 00:41:03.345

I'd say slip imply fall, land on the arm and break it.

803

00:41:03.495 --> 00:41:04.945

Something like that might be the effect.

804

00:41:05.935 --> 00:41:08.865

Fall Or fall falls the hazard.

805

00:41:09.155 --> 00:41:10.945

Where did where, okay, where did we lose safety

806

00:41:10.945 --> 00:41:14.065

control at the slip?

807

00:41:15.605 --> 00:41:16.945

My slip without falling slip

808

00:41:16.945 --> 00:41:20.085

Slash Yeah, you might, that would be sort

809

00:41:20.085 --> 00:41:21.605

of the slip get embarrassed kind of thing.

810

00:41:22.655 --> 00:41:27.025

So we're implying fall. Claude, how we doing bud?

811

00:41:27.325 --> 00:41:29.105

We back in there. Whoop. There we go.

812

00:41:29.175 --> 00:41:34.165

Okay, The

813

00:41:34.165 --> 00:41:35.565

matrix we were talking about over here.

814

00:41:36.705 --> 00:41:39.085

Who does this? Hey man, I'm doing TCAs testing.

815

00:41:39.245 --> 00:41:41.965

I know midair collision's a hazard and it's high risk. Boom.

816

00:41:41.985 --> 00:41:44.405

And then you start building your THA backwards from

817

00:41:44.405 --> 00:41:45.485

that high risk.

818

00:41:46.155 --> 00:41:48.205

Anybody do that all the time?

819

00:41:50.355 --> 00:41:55.045

What I recommend is we start objectively, it's funny

820

00:41:55.205 --> 00:41:56.765

'cause we call it a subjective risk assessment,

821

00:41:56.865 --> 00:41:58.285

but be objective, don't go in

822

00:41:58.285 --> 00:41:59.805

with a preconceived conclusion.

823

00:42:00.155 --> 00:42:01.965

Like at test pilot school, all

824
00:42:01.965 --> 00:42:04.085
of our test plans are cat a low risk.

825
00:42:04.345 --> 00:42:06.965
So we just know that we have to engineer the data

826
00:42:06.985 --> 00:42:08.325
to get low risk, right?

827
00:42:08.955 --> 00:42:11.365
That is unfortunate.

828
00:42:11.945 --> 00:42:13.965
If we go in here, start with probability

829
00:42:14.265 --> 00:42:15.285
and then look at severity

830
00:42:16.305 --> 00:42:17.645
and then just see where it falls out

831
00:42:18.305 --> 00:42:19.205
and you can tweak it, you know,

832
00:42:19.205 --> 00:42:20.285
work with your team, talk through it.

833
00:42:20.665 --> 00:42:22.725
Uh, the definitions, uh, I don't know that we need to read.

834
00:42:22.725 --> 00:42:24.445
They're on the next slide for your reference.

835
00:42:24.445 --> 00:42:27.045
If you're following along, improbable basically,

836
00:42:27.105 --> 00:42:28.725
and it, it is subjective, okay?

837
00:42:28.845 --> 00:42:31.325

We're not necessarily using our one times 10

838

00:42:31.325 --> 00:42:33.165
to the minus six kind of stuff here.

839

00:42:33.165 --> 00:42:35.925
It doesn't have to be based on past anything.

840

00:42:36.275 --> 00:42:38.605
This is your experience, your knowledge of the system.

841

00:42:39.145 --> 00:42:40.245
Um, so you can, and,

842

00:42:40.265 --> 00:42:42.585
and you can sort of move around

843

00:42:42.585 --> 00:42:44.065
as necessary based on your team's judgment.

844

00:42:44.165 --> 00:42:47.185
And, and another thing we recommend is take it

845

00:42:47.185 --> 00:42:48.705
to your reviewers.

846

00:42:48.705 --> 00:42:50.385
Take it to your approvers early on.

847

00:42:50.805 --> 00:42:52.145
Say, Hey, this is what we're thinking.

848

00:42:52.495 --> 00:42:54.065
What do you think based on your experience?

849

00:42:54.065 --> 00:42:56.385
You get their buy-in early on, on

850

00:42:56.385 --> 00:42:59.025
what the risk level is, um, early on.

851
00:42:59.285 --> 00:43:01.385
So we come in on the bottom with our probability

852
00:43:01.765 --> 00:43:03.145
and go up with severity,

853
00:43:03.145 --> 00:43:04.345
and then you land somewhere in here.

854
00:43:04.765 --> 00:43:07.345
So let's go back to the banana peel thing.

855
00:43:07.765 --> 00:43:10.425
Huffer says we're gonna take this, um,

856
00:43:11.165 --> 00:43:12.865
hit your head and die scenario.

857
00:43:12.935 --> 00:43:14.305
Okay? And that's fine. Let's pick one

858
00:43:14.305 --> 00:43:15.705
and just sort of go with it for the exercise.

859
00:43:16.285 --> 00:43:20.345
Um, what is the probability of slipping, falling,

860
00:43:20.455 --> 00:43:21.825
leaning on your head and dying?

861
00:43:25.355 --> 00:43:27.055
Is it remote? Yeah.

862
00:43:27.795 --> 00:43:29.535
And you can look, again, the definitions are there

863
00:43:29.535 --> 00:43:31.175
and you should probably get in the habit of looking at 'em.

864
00:43:31.175 --> 00:43:33.815

Go ahead and break out your book. I would recommend

865

00:43:33.815 --> 00:43:37.335

as you do your tpha, look at the definitions

866

00:43:37.475 --> 00:43:40.495

and, uh, we're up on, you guys see it in your book.

867

00:43:40.495 --> 00:43:41.535

There's a cool picture there.

868

00:43:42.315 --> 00:43:44.015

And, uh, risk assessment factors.

869

00:43:44.165 --> 00:43:45.215

It's on the next slide,

870

00:43:45.215 --> 00:43:46.295

but we're just gonna talk through this.

871

00:43:47.115 --> 00:43:49.335

Um, so we say remote, unlikely to occur.

872

00:43:49.355 --> 00:43:51.695

Do we agree with that? All right, so it's remote

873

00:43:52.155 --> 00:43:53.655

and what is the severity?

874

00:43:55.545 --> 00:43:59.375

Death? So this is gonna be risk level of, medium of, okay.

875

00:44:00.485 --> 00:44:02.575

Depends how many banana fields there are.

876

00:44:03.445 --> 00:44:04.695

Okay, keep going.

877

00:44:08.155 --> 00:44:09.575

How well trained the pilot is.

878

00:44:10.965 --> 00:44:15.535

Okay. Oh,

879

00:44:15.535 --> 00:44:17.215

so you're saying there's a lot of considerations.

880

00:44:17.225 --> 00:44:20.775

We've got a lot of factors we need to consider. Yeah. Okay.

881

00:44:20.795 --> 00:44:23.175

So let's look at some considerations again, back

882

00:44:23.175 --> 00:44:24.375

to the 40, 40, 26.

883

00:44:24.785 --> 00:44:26.175

These are the kind of questions you need

884

00:44:26.175 --> 00:44:27.615

to ask for this situation.

885

00:44:28.045 --> 00:44:30.695

What, what's really applicable? This is a great list.

886

00:44:31.505 --> 00:44:35.405

Highly recommend looking at it. Bullet number one, workload.

887

00:44:36.835 --> 00:44:37.885

What do you guys think about that?

888

00:44:37.915 --> 00:44:42.205

Anybody actually use those in your ts? Yes. Yes. Often.

889

00:44:42.625 --> 00:44:44.365

That's a weird one. I don't know that everybody does.

890

00:44:44.585 --> 00:44:46.845

And I also, I recommend we talk about that in the panel.

891

00:44:47.165 --> 00:44:49.925

'cause that's a tough one. How do you, what,

892

00:44:49.925 --> 00:44:51.285

what's your experience with workload?

893

00:44:51.305 --> 00:44:53.485

How do you weave that into your considerations? Well,

894

00:44:53.625 --> 00:44:56.125

Uh, as a baseline, it brings up the risk

895

00:44:56.145 --> 00:44:57.805

to measure by definition

896

00:44:58.105 --> 00:44:59.105

For us. Yes.

897

00:44:59.105 --> 00:45:01.285

Right? And,

898

00:45:01.345 --> 00:45:02.765

Uh, depending on

899

00:45:10.275 --> 00:45:11.645

actions be

900

00:45:15.985 --> 00:45:17.085

Yep, Action.

901

00:45:20.465 --> 00:45:21.885

And I, I know you couldn't all hear that,

902

00:45:21.885 --> 00:45:23.565

but something he said early on, and what's your name?

903

00:45:25.655 --> 00:45:27.605

Stick. Okay, stick said

904

00:45:27.715 --> 00:45:30.925

that automatically if workload is increased by definition

905
00:45:30.945 --> 00:45:32.365
of risk, it elevates it.

906
00:45:33.105 --> 00:45:35.725
And I think that's in our definition when we look at our,

907
00:45:35.725 --> 00:45:36.725
our risk definitions here,

908
00:45:37.005 --> 00:45:38.005
workload is one of the considerations.

909
00:45:38.005 --> 00:45:40.965
If we increase workload, our risk level goes up. Okay.

910
00:45:41.155 --> 00:45:43.725
It's just sort of, it's hard to define, right?

911
00:45:43.725 --> 00:45:45.165
Like workload work harder.

912
00:45:45.585 --> 00:45:46.965
You know, my dad says when your

913
00:45:46.965 --> 00:45:48.045
plates full, get a bigger plate.

914
00:45:48.785 --> 00:45:49.845
So that's hard

915
00:45:49.845 --> 00:45:53.975
to Yeah, that's right.

916
00:45:55.285 --> 00:45:58.015
Lots of ations are aim towards

917
00:45:58.015 --> 00:45:58.655
That. Yes.

918
00:45:59.395 --> 00:46:02.535

So have someone monitor Sometimes, right?

919

00:46:03.235 --> 00:46:08.215

The somebody his workload goes down.

920

00:46:08.365 --> 00:46:11.895

Yeah. Good. Okay.

921

00:46:12.715 --> 00:46:14.535

So not as much controversies as I thought.

922

00:46:14.535 --> 00:46:18.215

Uh, we might have, um, design maturity. Okay?

923

00:46:18.215 --> 00:46:20.895

If you're taking an F 18 to do carrier suitability testing

924

00:46:20.895 --> 00:46:24.455

with a new radio in it, that's very different than taking

925

00:46:25.015 --> 00:46:27.615

F 35 C to the carrier for the first time, right?

926

00:46:27.715 --> 00:46:28.935

The, those are very different.

927

00:46:29.715 --> 00:46:31.415

The maturity of those systems are very different.

928

00:46:32.235 --> 00:46:35.215

And then this one, the pilot currency proficiency

929

00:46:35.695 --> 00:46:36.735

familiarity with test systems.

930

00:46:39.175 --> 00:46:41.655

I, I gotta believe when we're doing certification testing,

931

00:46:41.725 --> 00:46:42.935

this has to come up, right?

932

00:46:42.935 --> 00:46:44.855

Because if Gulfstream has

933

00:46:45.375 --> 00:46:47.455

a company pilot doing developmental testing,

934

00:46:48.295 --> 00:46:50.115

that's a very different person.

935

00:46:50.885 --> 00:46:53.395

Their familiarity by nature is gonna be more than when it

936

00:46:53.395 --> 00:46:54.715

goes to certification testing, right?

937

00:46:54.985 --> 00:46:56.275

Does the risk level change there?

938

00:46:56.275 --> 00:46:58.915

Does your t do you do a different THA for that scenario? Go.

939

00:47:08.635 --> 00:47:10.255

So I was talking about the, the pilot,

940

00:47:10.355 --> 00:47:12.775

but you're saying going back to the system, okay, so

941

00:47:12.775 --> 00:47:16.415

as we go flight one, we don't know much.

942

00:47:16.715 --> 00:47:19.175

We go through company or developmental tests

943

00:47:19.675 --> 00:47:21.335

and we've got a lot more information.

944

00:47:21.335 --> 00:47:22.775

We've better characterize the behavior,

945

00:47:23.275 --> 00:47:25.655

our predictions have been validated or corrected,

946

00:47:25.995 --> 00:47:27.815

and then we go to CERT testing

947

00:47:28.835 --> 00:47:30.965

and we sort of know, we know we know the answer

948

00:47:30.985 --> 00:47:32.765

before we go there or what it should be, right?

949

00:47:33.345 --> 00:47:36.405

So does the risk that THA do you change

950

00:47:37.315 --> 00:47:39.365

your risk assessment between those two?

951

00:47:43.705 --> 00:47:45.925

Why not? What, but you know, more according

952

00:47:46.985 --> 00:47:47.985

Six, we keep it.

953

00:47:49.665 --> 00:47:50.965

We do pre. Okay.

954

00:47:50.965 --> 00:47:52.525

And we're gonna get to that. Yeah, I think

955

00:47:52.525 --> 00:47:53.525

You can.

956

00:47:53.625 --> 00:47:56.805

You sure you can. Absolutely. Okay.

957

00:47:57.185 --> 00:47:58.565

So this is a good interesting point.

958

00:47:58.565 --> 00:47:59.565

We're gonna come back to. Rod

959

00:48:06.285 --> 00:48:07.945

Was a by Management.

960

00:48:08.035 --> 00:48:09.035

Thank you.

961

00:48:12.255 --> 00:48:15.145

When we wrote the order, there was a misconception by,

962

00:48:15.245 --> 00:48:19.985

by top level fa a management at the certification level,

963

00:48:20.485 --> 00:48:25.145

uh, that, that, uh, FAA certification testing was no,

964

00:48:25.485 --> 00:48:26.825

not, not a risk at all,

965

00:48:27.455 --> 00:48:30.345

because all the FA A does is just repeat the company

966

00:48:30.375 --> 00:48:31.385

test and verify.

967

00:48:33.085 --> 00:48:36.265

So to top managers, that's the way that we're seeing things.

968

00:48:37.405 --> 00:48:40.945

And, and, and on the surface, it it made sense.

969

00:48:41.485 --> 00:48:43.945

You know, all the FA is doing is is just

970

00:48:43.945 --> 00:48:45.145

repeating what the company says.

971

00:48:45.365 --> 00:48:46.705

The airplane's already mature

972

00:48:47.005 --> 00:48:48.465

and all they're doing is verifying.

973

00:48:50.605 --> 00:48:54.945

And then we showed them a whole bunch of accidents with

974

00:48:54.955 --> 00:48:59.145

where death was involved, loss of airplane, loss of life.

975

00:49:00.405 --> 00:49:03.225

And, uh, we became to realize that, uh,

976

00:49:03.375 --> 00:49:06.585

that FA testing is just as hazard as as a company testing.

977

00:49:06.765 --> 00:49:09.745

So the fa a decided when we go and,

978

00:49:09.925 --> 00:49:12.905

and test the company airplanes for certification,

979

00:49:13.365 --> 00:49:15.545

we just assume that it's never been tested before.

980

00:49:16.125 --> 00:49:19.825

And that philosophy is a good philosophy to keep now.

981

00:49:20.845 --> 00:49:23.385

So you can take that to an extreme,

982

00:49:23.405 --> 00:49:25.505

but, uh, sometimes system,

983

00:49:25.925 --> 00:49:28.385

so it's a judgment call in system maturity.

984

00:49:28.445 --> 00:49:32.265

But the FAA considered going into doing company testing,

985

00:49:33.575 --> 00:49:36.715

um, uh, is just as risky.

986

00:49:36.815 --> 00:49:38.355

So we took it at the highest level

987

00:49:38.355 --> 00:49:43.235

of risk when we went there, an example, uh, transfers.

988

00:49:43.235 --> 00:49:47.995

Canada was doing a, uh, stall testing on a,

989

00:49:48.335 --> 00:49:53.275

on a, uh, on an airplane after the company had done it.

990

00:49:54.065 --> 00:49:56.195

They departed, they put the airplane in the spin shoot.

991

00:49:58.135 --> 00:50:00.755

And the difference was just a slight different test

992

00:50:01.035 --> 00:50:03.435

technique than the company had done it.

993

00:50:03.735 --> 00:50:06.835

And they discovered, uh, that they had to redesign the,

994

00:50:07.015 --> 00:50:10.075

the stall, uh, protection system as a result

995

00:50:10.075 --> 00:50:12.195

of the transfer Canada pilot ly

996

00:50:12.195 --> 00:50:13.755

what the company had already flown.

997

00:50:14.895 --> 00:50:16.235

So consider that.

998

00:50:16.865 --> 00:50:19.315

Okay. It it's interesting perspective Rod.

999

00:50:19.895 --> 00:50:22.915

Um, interesting perspective, mind

1000

00:50:23.095 --> 00:50:27.075

Is the, uh, you, you have that risk one and risk two

1001

00:50:27.235 --> 00:50:28.445

Exactly. By doing

1002

00:50:28.505 --> 00:50:30.125

All that stuff, haven't gone

1003

00:50:30.125 --> 00:50:31.925

through all previous test program,

1004

00:50:35.325 --> 00:50:36.325

Right?

1005

00:50:38.325 --> 00:50:40.585

You know, what, what is the purpose of flight test?

1006

00:50:40.585 --> 00:50:43.805

Developmental tests, answer questions.

1007

00:50:43.825 --> 00:50:46.685

We get data, we answer questions, we answer questions.

1008

00:50:46.685 --> 00:50:49.165

And then when we have the answers, what do we do with all

1009

00:50:49.165 --> 00:50:51.885

that data and our conclusions and recommendations?

1010

00:50:52.795 --> 00:50:55.885

We give it to somebody FA, a

1011

00:50:56.465 --> 00:50:59.165

air four op engineers, some airworthiness certification,

1012

00:50:59.165 --> 00:51:00.165

authority, ia.

1013

00:51:00.465 --> 00:51:01.885

And what are we hoping that they give us back?

1014

00:51:05.655 --> 00:51:09.345

Yeah. So now the operators have an envelope to operate in.

1015

00:51:09.845 --> 00:51:13.905

So Rod, we're the whole purpose of test is to prove

1016

00:51:13.905 --> 00:51:16.905

that we have a valid envelope that operators can use, which

1017

00:51:16.965 --> 00:51:20.025

by implication I would say means it's low enough risk

1018

00:51:20.045 --> 00:51:22.865

for the average folks to, to use out there, right?

1019

00:51:23.045 --> 00:51:24.265

That's, that's the whole purpose of it.

1020

00:51:24.265 --> 00:51:26.905

So I think going back to this is the important takeaway

1021

00:51:26.905 --> 00:51:29.465

here, or, or concept there's a residual risk

1022

00:51:30.365 --> 00:51:31.705

or, um, unmitigated risk

1023

00:51:31.705 --> 00:51:33.505

and residual risk as we go through a program,

1024

00:51:33.685 --> 00:51:35.305

of course you wanna drive risk down,

1025

00:51:37.005 --> 00:51:38.945

but the, the philosophical question here is,

1026

00:51:38.965 --> 00:51:41.585

is it different when we go from dev test to cert test?

1027

00:51:42.165 --> 00:51:43.985

And, uh, I don't know that I want to get in that,

1028

00:51:44.535 --> 00:51:47.905

that fight, but it's, um, it's something

1029

00:51:47.905 --> 00:51:49.305

to think about. Yes.

1030

00:51:49.935 --> 00:51:51.345

Yeah. Couple points,

1031

00:51:59.055 --> 00:52:00.055

Right?

1032

00:52:00.395 --> 00:52:00.685

Yeah.

1033

00:52:08.175 --> 00:52:09.175

Yep.

1034

00:52:11.895 --> 00:52:13.385

Another part of the risk assessment,

1035

00:52:13.725 --> 00:52:16.675

we considered test risk.

1036

00:52:19.875 --> 00:52:21.355

Consider the day to day operational.

1037

00:52:24.065 --> 00:52:25.995

Yeah, sure. Uh, exactly.

1038

00:52:28.105 --> 00:52:29.925

Yeah. Very good. I think.

1039

00:52:36.425 --> 00:52:40.655

Yeah, absolutely. And what's your name? Mal.

1040
00:52:41.155 --> 00:52:45.255
Mal For bsa, right? Or Airbus Air. Airbus. I'm sorry. Yeah.

1041
00:52:45.275 --> 00:52:46.775
So we, uh, yeah, I apologize. Yeah.

1042
00:52:47.155 --> 00:52:49.335
Um, so we constantly need to be a reassessing risk

1043
00:52:49.635 --> 00:52:51.375
and we can update our t a's

1044
00:52:51.375 --> 00:52:52.695
and the risk level as appropriate.

1045
00:52:53.595 --> 00:52:55.975
One more thing. Yes. And where's the mic? Can I get the mic?

1046
00:53:05.645 --> 00:53:08.025
Uh, one more point that you can immediately dismiss

1047
00:53:08.025 --> 00:53:10.305
as a rabbit hole if you want to, but, uh, it's fine.

1048
00:53:10.525 --> 00:53:14.505
Uh, we would absolutely consider embarrassment.

1049
00:53:14.595 --> 00:53:17.105
Let's call it reputational risk, right? Program effects.

1050
00:53:17.415 --> 00:53:20.505
Yeah. Um, at this stage.

1051
00:53:22.485 --> 00:53:26.525
So it's not just for us death injury aircraft damage,

1052
00:53:26.625 --> 00:53:28.005
we also very much will need

1053
00:53:28.005 --> 00:53:29.285

to consider the effect on a program.

1054

00:53:29.665 --> 00:53:32.965

Yes. 'cause uh, the failure of a program can kill a company.

1055

00:53:33.365 --> 00:53:34.925

Absolutely. So it's, it's absolutely

1056

00:53:35.125 --> 00:53:36.125

Critical. And that's a great point,

1057

00:53:36.125 --> 00:53:36.645

especially

1058

00:53:36.645 --> 00:53:38.405

for the folks in uniform working for DOD.

1059

00:53:38.405 --> 00:53:40.245

It's, it's a consideration we may not

1060

00:53:40.895 --> 00:53:42.045

think about necessarily.

1061

00:53:42.505 --> 00:53:44.085

Um, but it, you're right, it's huge.

1062

00:53:44.425 --> 00:53:49.305

You know, Huffer talked about the 2011 mishap rod,

1063

00:53:49.445 --> 00:53:51.145

or did I go out?

1064

00:53:51.325 --> 00:53:53.025

No, I'm kidding. All right, let's keep moving.

1065

00:53:53.085 --> 00:53:54.785

But, uh, there's some considerations here.

1066

00:53:54.785 --> 00:53:57.425

It's in the 40 40, 26. It's a great list, Rancho.

1067

00:53:57.425 --> 00:53:59.225

Let's keep that in rev, Charlie. Okay.

1068

00:54:01.925 --> 00:54:05.255

Um, steps for mitigation.

1069

00:54:05.635 --> 00:54:10.015

We talked earlier about enumerating the causes,

1070

00:54:10.595 --> 00:54:12.975

and that's a great way to trace our mitigations back.

1071

00:54:13.085 --> 00:54:14.815

What if we come up with these great mitigations

1072

00:54:15.155 --> 00:54:17.375

and then we say, oh, but there's no cause that it ties to

1073

00:54:18.045 --> 00:54:19.615

what, what could be going on there?

1074

00:54:21.365 --> 00:54:23.585

Say again? Feel good, feel good?

1075

00:54:23.605 --> 00:54:24.945

No, if I've got mitigations,

1076

00:54:24.965 --> 00:54:26.785

but I'm not mitigating an identified

1077

00:54:26.785 --> 00:54:28.785

cause, what might we have done?

1078

00:54:28.965 --> 00:54:31.425

Missed the cause. There you go. Missed the cause, right?

1079

00:54:31.425 --> 00:54:35.515

Awesome. Now, mitigations that address causes

1080

00:54:36.445 --> 00:54:38.115

often address probability, right?

1081

00:54:38.375 --> 00:54:40.435

But do we have mitigations that address severity

1082

00:54:41.715 --> 00:54:44.335

and are, so those are usually breaking a chain of events

1083

00:54:44.335 --> 00:54:45.895

that's downstream from the hazard.

1084

00:54:46.835 --> 00:54:49.615

You following me? So the hazard, we realize the hazard,

1085

00:54:50.275 --> 00:54:52.175

and now we're making me wear a helmet

1086

00:54:52.715 --> 00:54:53.815

to reduce the severity.

1087

00:54:55.035 --> 00:54:58.725

Okay. Mitigate the effect. Okay. However we wanna say it.

1088

00:54:58.725 --> 00:54:59.765

Those are just as valid.

1089

00:54:59.965 --> 00:55:04.205

I want those to earn space on your THA worksheets. Okay?

1090

00:55:04.665 --> 00:55:06.845

Um, even if, so, if we can tie the mitigations

1091

00:55:07.425 --> 00:55:08.805

to a specific cause, you know,

1092

00:55:08.805 --> 00:55:11.805

maybe parenthetically this mitigation goes to cause A

1093

00:55:11.805 --> 00:55:12.845

and B or something like that.

1094
00:55:12.845 --> 00:55:14.245
That's a great best practice.

1095
00:55:15.755 --> 00:55:16.895
But when we do things that mitigate

1096
00:55:17.055 --> 00:55:18.095
severity, they're just as valid too.

1097
00:55:24.655 --> 00:55:27.385
This is another great list outta the 40, 40, 26, okay?

1098
00:55:27.385 --> 00:55:28.505
Mitigation considerations.

1099
00:55:28.525 --> 00:55:30.585
We sort of get this, if you've been doing this 20 years,

1100
00:55:31.005 --> 00:55:33.145
you run through this list sort of subconsciously,

1101
00:55:33.865 --> 00:55:35.205
but it's a great checklist

1102
00:55:35.425 --> 00:55:36.845
to cross reference your thought

1103
00:55:36.845 --> 00:55:38.205
process going through mitigations.

1104
00:55:38.595 --> 00:55:41.365
Some of these are pretty good scope and method, obviously.

1105
00:55:41.365 --> 00:55:43.405
That's, that's where we talk about baking risk

1106
00:55:43.405 --> 00:55:44.725
management into your test planning.

1107
00:55:44.825 --> 00:55:48.365

Our scope is maybe we're not gonna test at 150 feet,

1108

00:55:48.365 --> 00:55:53.135

maybe we'll bump it up to 5,000 feet buildup.

1109

00:55:54.155 --> 00:55:56.015

Here's what I think we, we think we understand,

1110

00:55:56.155 --> 00:55:57.895

but I want you to think about it a a little bit more here.

1111

00:55:57.955 --> 00:56:01.015

If we have an endpoint, I did a bunch

1112

00:56:01.135 --> 00:56:02.175

of aerial refueling testing.

1113

00:56:02.355 --> 00:56:04.775

So 30,000 feet, 300 knots,

1114

00:56:05.925 --> 00:56:09.165

F 35 against a KC 10, maybe that's an endpoint.

1115

00:56:09.355 --> 00:56:12.565

Okay? So in our program, we've got buildup

1116

00:56:12.625 --> 00:56:13.925

to get to that point, right?

1117

00:56:13.925 --> 00:56:15.725

We're going, you know, we're increasing altitude,

1118

00:56:15.725 --> 00:56:16.925

increasing air speed,

1119

00:56:17.345 --> 00:56:19.445

and eventually it's day to go get

1120

00:56:19.445 --> 00:56:20.885

that, that endpoint, right?

1121
00:56:20.885 --> 00:56:22.445
So that's build up in our program, right?

1122
00:56:24.405 --> 00:56:25.655
What if I'm sick that day

1123
00:56:26.195 --> 00:56:28.095
and it's brick, brick hits the flight schedule.

1124
00:56:30.135 --> 00:56:31.875
Are we good with him going and getting that endpoint?

1125
00:56:33.985 --> 00:56:37.805
Why not? Okay.

1126
00:56:37.945 --> 00:56:39.805
He hasn't, he hasn't had it.

1127
00:56:39.805 --> 00:56:41.885
Often in our test plans we talk about we're gonna build up

1128
00:56:41.885 --> 00:56:43.525
an air speeded, we're gonna build up an altitude,

1129
00:56:44.105 --> 00:56:47.245
but we don't necessarily say our test team.

1130
00:56:47.245 --> 00:56:48.485
And it's not just the pilot, it

1131
00:56:48.485 --> 00:56:49.605
can be the control room as well.

1132
00:56:50.035 --> 00:56:52.605
They, we may need to identify some buildup for them as well.

1133
00:56:53.035 --> 00:56:53.325
Okay.

1134
00:57:05.675 --> 00:57:07.085

This is a good advice. Anybody have anything

1135

00:57:07.085 --> 00:57:08.365

to offer on any of these other ones?

1136

00:57:12.815 --> 00:57:16.415

So one thing is with respect to the buildups, while,

1137

00:57:16.995 --> 00:57:18.535

you know, one person

1138

00:57:25.915 --> 00:57:29.805

organization, you might not have

1139

00:57:30.435 --> 00:57:31.895

one the same people view,

1140

00:57:40.695 --> 00:57:42.135

But in addition to that, there's

1141

00:57:47.355 --> 00:57:48.355

Yes. Yep.

1142

00:57:48.355 --> 00:57:49.935

And not just the pilot, right?

1143

00:57:50.075 --> 00:57:51.615

How about, how about the test conductor

1144

00:57:51.615 --> 00:57:53.855

or test director, whatever critical engineer Yeah.

1145

00:57:54.235 --> 00:57:56.615

At the simulator was her point. Get mission rehearsal.

1146

00:57:57.075 --> 00:57:59.895

And I think circling back around to your earlier point

1147

00:58:00.395 --> 00:58:03.175

of the learning process that you're doing through the test,

1148
00:58:03.835 --> 00:58:05.975
the idea is that yes, you're, you're going

1149
00:58:05.975 --> 00:58:07.095
through this test buildup

1150
00:58:07.395 --> 00:58:08.895
and as you go through the buildup,

1151
00:58:08.915 --> 00:58:10.175
you are learning something

1152
00:58:11.035 --> 00:58:13.855
and it's pointless for safety buildup.

1153
00:58:13.955 --> 00:58:17.055
You don't share that learning with your team.

1154
00:58:17.195 --> 00:58:19.975
So in other words, I may not fly this afternoon,

1155
00:58:20.095 --> 00:58:23.055
I may just fly in the morning and debrief in the afternoon

1156
00:58:23.075 --> 00:58:24.695
or the data or whatever.

1157
00:58:24.695 --> 00:58:27.215
It's, if that's built into your plan that

1158
00:58:29.975 --> 00:58:33.305
then you survive a pilot.

1159
00:58:36.735 --> 00:58:38.505
Yeah. Yes.

1160
00:58:39.755 --> 00:58:44.025
We're pilot aircraft

1161
00:58:45.115 --> 00:58:45.465

pilot,

1162

00:58:50.245 --> 00:58:50.595

pilot,

1163

00:58:55.035 --> 00:58:56.265

pilot to go through that.

1164

00:58:56.285 --> 00:58:57.285

But once you get there,

1165

00:59:01.175 --> 00:59:02.175

Right? And you know, something I

1166

00:59:02.175 --> 00:59:03.005

did talk about is the level

1167

00:59:03.005 --> 00:59:05.565

of difficulty that test point's really difficult, right?

1168

00:59:05.565 --> 00:59:06.805

And that, that may have been

1169

00:59:06.805 --> 00:59:08.565

implied, I dunno if you picked that up.

1170

00:59:08.585 --> 00:59:09.845

So that's probably what goes into

1171

00:59:09.845 --> 00:59:11.565

that calculus on, on the pilot.

1172

00:59:12.185 --> 00:59:14.565

Um, you know, great thing F 18

1173

00:59:15.335 --> 00:59:16.805

loads engineers did not like me.

1174

00:59:16.865 --> 00:59:18.045

I'd go out there and do windup turns

1175
00:59:18.045 --> 00:59:20.365
and on the sixth try they're like, Oxy,

1176
00:59:20.365 --> 00:59:21.485
you just, you're not good.

1177
00:59:21.535 --> 00:59:22.725
We're gonna get somebody else to do it.

1178
00:59:23.125 --> 00:59:25.325
F 35 talk about building in efficiency

1179
00:59:25.325 --> 00:59:27.925
and effectiveness now was just get on condition,

1180
00:59:27.945 --> 00:59:30.125
hit a little button and the jet would do the maneuver For

1181
00:59:30.125 --> 00:59:32.125
me, we were much more efficient.

1182
00:59:32.185 --> 00:59:34.165
So, um, that's sort of a sidebar,

1183
00:59:34.225 --> 00:59:37.485
but that can go into reducing risk as well.

1184
00:59:37.705 --> 00:59:38.765
And, you know, effectiveness

1185
00:59:38.765 --> 00:59:43.515
and efficiency of your program. I like

1186
00:59:43.515 --> 00:59:45.375
Stress the containment as well.

1187
00:59:45.665 --> 00:59:47.215
We've tructure

1188
00:59:48.455 --> 00:59:50.975

even down

1189

00:59:53.505 --> 00:59:54.505

Tomorrow, right?

1190

00:59:55.595 --> 00:59:56.375

Yes. Yeah,

1191

01:00:01.405 --> 01:00:02.895

yeah, yeah, yeah.

1192

01:00:04.285 --> 01:00:05.375

This is a great list. And,

1193

01:00:05.375 --> 01:00:06.455

and there's a couple others in there

1194

01:00:06.455 --> 01:00:09.015

that are a little more abstract, but it's, it's good. Yes.

1195

01:00:09.525 --> 01:00:11.495

Face. Hey Oxy, here's something to think about.

1196

01:00:12.195 --> 01:00:15.055

We talked about sharing lessons learned with your test team,

1197

01:00:15.595 --> 01:00:19.055

but how about transitioning from test to

1198

01:00:20.025 --> 01:00:22.935

operations, like when something's at a test

1199

01:00:22.935 --> 01:00:23.975

and now it's in the fleet?

1200

01:00:24.695 --> 01:00:28.295

I think we're terrible at sharing lessons with the fleet.

1201

01:00:28.675 --> 01:00:32.535

And I'll give an example. Super Hornet flight demonstration.

1202

01:00:33.795 --> 01:00:35.855

The, the mishap that occurred at Lamore. Yeah.

1203

01:00:36.075 --> 01:00:38.575

We could have shared the lessons learned from the

1204

01:00:38.575 --> 01:00:40.935

development of the, of the demo Yeah.

1205

01:00:40.995 --> 01:00:42.735

To the fleet. And, and we didn't do that

1206

01:00:43.035 --> 01:00:46.535

and the fleet started to migrate away from everything

1207

01:00:46.535 --> 01:00:48.415

that we had done for mitigations for that. Yeah,

1208

01:00:49.355 --> 01:00:50.355

That's a great point.

1209

01:00:50.995 --> 01:00:54.335

We wrote for F 35 in, in flight refueling, the KC 1 35.

1210

01:00:54.975 --> 01:00:56.175

I won't go into it, but it's a nightmare.

1211

01:00:56.195 --> 01:00:59.215

And we, we wrote the procedures there and the cautions.

1212

01:00:59.795 --> 01:01:01.775

So as test teams, we, you're right, we need

1213

01:01:01.775 --> 01:01:04.255

to be informing not just their worthiness certification

1214

01:01:04.255 --> 01:01:05.695

authority, but the operators

1215

01:01:06.035 --> 01:01:07.695

and building their operator handbooks.

1216

01:01:08.715 --> 01:01:11.335

All right, so this is good. Good discussion. Yes.

1217

01:01:11.335 --> 01:01:12.335

Last one, please.

1218

01:01:17.005 --> 01:01:17.855

What kind of

1219

01:01:28.615 --> 01:01:32.655

Yeah, he, he said, what are our margins

1220

01:01:33.955 --> 01:01:34.975

and we gotta know them.

1221

01:01:35.125 --> 01:01:37.495

This is huge Now, 21st century modeling

1222

01:01:37.595 --> 01:01:40.615

and sim are driving down the scope of our test programs

1223

01:01:41.235 --> 01:01:43.095

and understanding when we go out there

1224

01:01:43.195 --> 01:01:44.775

and we push the big red easy button

1225

01:01:44.835 --> 01:01:46.895

and make the jet do whatever, do we understand

1226

01:01:46.895 --> 01:01:49.615

what the predicted response is and what are our margins?

1227

01:01:49.615 --> 01:01:52.895

You know, if we're going up to 98% of design limit load,

1228

01:01:53.515 --> 01:01:55.535

that's different than we're doing our buildup, right?

1229

01:01:55.795 --> 01:01:56.855

Johnny Times

1230

01:02:04.805 --> 01:02:06.095

Simulator Practice.

1231

01:02:06.125 --> 01:02:07.125

Yeah.

1232

01:02:12.405 --> 01:02:17.295

Condition and what do, what do,

1233

01:02:21.075 --> 01:02:22.075

Yeah. Wait,

1234

01:02:22.075 --> 01:02:23.005

there's some blue holes.

1235

01:02:23.035 --> 01:02:24.245

Well, so Johnny o said, Hey,

1236

01:02:24.245 --> 01:02:25.725

when you're in the simulator practicing,

1237

01:02:25.865 --> 01:02:27.245

you gotta practice, right?

1238

01:02:27.595 --> 01:02:28.645

Emphasize the good habits.

1239

01:02:28.965 --> 01:02:31.675

'cause what is a perfect practice makes perfect,

1240

01:02:31.895 --> 01:02:33.155

but it's, there's more to what is the quote?

1241

01:02:33.225 --> 01:02:37.025

Perfect, perfect. Practice makes perfect. Thank you.

1242

01:02:38.185 --> 01:02:41.275

Practice makes permanent per if,

1243

01:02:41.295 --> 01:02:43.275

if you're doing it bad in practice or

1244

01:02:43.835 --> 01:02:44.595

Yeah, right? Make

1245

01:02:44.595 --> 01:02:45.595

That bad habit. Permanent.

1246

01:02:45.595 --> 01:02:48.595

Yeah. Very good. So that's a great mindset.

1247

01:02:49.445 --> 01:02:50.675

We're gonna keep rolling. Okay.

1248

01:02:51.825 --> 01:02:54.205

Um, eps, if the hazard

1249

01:02:54.745 --> 01:02:57.085

is realized is a term we use, right?

1250

01:02:57.545 --> 01:02:59.445

Um, and I know this is getting sort of long,

1251

01:02:59.445 --> 01:03:01.285

we're gonna make it exciting and fun here in a minute here.

1252

01:03:01.505 --> 01:03:04.685

Uh, this can be really straightforward outta control flight,

1253

01:03:05.155 --> 01:03:06.965

execute outta control flight procedures.

1254

01:03:07.265 --> 01:03:10.085

If you need to write them out specifically for that,

1255

01:03:10.925 --> 01:03:11.965

whatever the hazard is, do.

1256

01:03:11.965 --> 01:03:13.685

So this should be pretty straightforward.

1257

01:03:19.505 --> 01:03:21.345

I put a little box in there at the bottom, right?

1258

01:03:21.855 --> 01:03:26.115

When you've done all these things, we need to come back

1259

01:03:26.695 --> 01:03:28.595

and look at what our residual risk is.

1260

01:03:28.615 --> 01:03:32.395

Now, the 40, 40 26 just requires us

1261

01:03:32.395 --> 01:03:33.875

to report our unmitigated risk.

1262

01:03:34.655 --> 01:03:37.405

But how do you know when you're done mitigating

1263

01:03:42.495 --> 01:03:43.495

Acceptable.

1264

01:03:47.615 --> 01:03:48.865

Exactly. We don't need an

1265

01:03:48.865 --> 01:03:50.225

I-beam in here and a harness, right?

1266

01:03:51.605 --> 01:03:53.355

Don't need it. So what's good enough,

1267

01:03:53.355 --> 01:03:54.515

you need to answer that for yourself.

1268

01:03:54.585 --> 01:03:56.275

What is acceptable manager risk

1269

01:03:56.275 --> 01:03:58.075

to an acceptable level implies you understand

1270

01:03:58.075 --> 01:04:00.595

what acceptable is, but you also need to characterize it.

1271

01:04:00.785 --> 01:04:03.115

Okay? So we're gonna do our subjective risk assessment again

1272

01:04:03.895 --> 01:04:05.475

and, and, and have, be awareness to that.

1273

01:04:05.535 --> 01:04:06.535

Rod.

1274

01:04:07.295 --> 01:04:11.415

Careful. Let's get the mic on Rod here.

1275

01:04:13.865 --> 01:04:16.215

Gotta be careful when you get to the emergency procedures

1276

01:04:16.215 --> 01:04:19.095

because, uh, it, it, it's easy to fall into, you know,

1277

01:04:19.165 --> 01:04:22.415

just execute out control recovery procedures and that's it.

1278

01:04:23.075 --> 01:04:25.615

But you really have to dig into the system.

1279

01:04:26.325 --> 01:04:28.575

There's some hazards. They're system unique.

1280

01:04:28.645 --> 01:04:31.095

They're not, they're new. That's why you're testing them.

1281

01:04:31.125 --> 01:04:32.215

Yeah. And they,

1282

01:04:32.215 --> 01:04:34.895

and there'd be some faults, some failures modes in

1283
01:04:34.895 --> 01:04:38.055
that system that requires specific emergency procedures.

1284
01:04:38.395 --> 01:04:40.735
So, and that's why I say word caution on that.

1285
01:04:41.355 --> 01:04:44.575
Get into the what's unique to that test and devise

1286
01:04:44.635 --> 01:04:46.495
and design emergency procedures for

1287
01:04:46.495 --> 01:04:47.935
that particular failure mode. Right?

1288
01:04:48.365 --> 01:04:52.655
Very good. Thank you. Okay.

1289
01:04:53.155 --> 01:04:54.735
Um, document and accept rm,

1290
01:04:54.735 --> 01:04:55.855
we're not gonna spend a lot of time on this.

1291
01:04:55.875 --> 01:04:59.135
You get it? Your, your organization has a process where once

1292
01:04:59.135 --> 01:05:02.575
that test plan's done, your ths are done,

1293
01:05:02.955 --> 01:05:04.495
how you route that for acceptance?

1294
01:05:09.445 --> 01:05:11.145
Uh, alright, a question. So here we go.

1295
01:05:11.255 --> 01:05:12.465
Classroom involvement,

1296
01:05:12.765 --> 01:05:16.585

and, uh, we'll see if this

1297

01:05:17.235 --> 01:05:19.645

just reinforces previous discussion or stimulates.

1298

01:05:19.665 --> 01:05:22.125

New buttha should define risk in terms

1299

01:05:22.125 --> 01:05:23.325

of severity and probability.

1300

01:05:23.645 --> 01:05:25.485

A, before mitigations are applied.

1301

01:05:26.045 --> 01:05:28.685

B, before and after mitigations are applied, or c

1302

01:05:29.785 --> 01:05:31.135

after mitigations are applied.

1303

01:05:46.505 --> 01:05:47.605

So we went from Halloween

1304

01:05:47.605 --> 01:05:49.805

to the beach boys we're getting schizophrenic.

1305

01:05:49.825 --> 01:05:52.885

Claude, but I like it. I like the tunes.

1306

01:05:52.915 --> 01:05:54.325

Okay, so b before and

1307

01:05:54.325 --> 01:05:55.845

after, this is the best practice, right?

1308

01:05:55.865 --> 01:05:57.325

You gotta look at your organization's,

1309

01:05:57.645 --> 01:05:59.725

whatever order you're operating to and honor that.

1310
01:05:59.985 --> 01:06:02.245
But definitely as an approver, I wanna know before and after

1311
01:06:02.345 --> 01:06:03.565
and it, it's something we should

1312
01:06:03.565 --> 01:06:04.685
definitely take home to our teams.

1313
01:06:05.435 --> 01:06:07.245
There's no right answer for this. Okay?

1314
01:06:07.305 --> 01:06:10.205
So my little arrow won't appear. Any discussion on that?

1315
01:06:14.495 --> 01:06:17.795
For those that said before mitigations somebody have,

1316
01:06:18.125 --> 01:06:22.535
could you share your mindset there, Wade?

1317
01:06:22.535 --> 01:06:25.495
What do you answer? That's Okay.

1318
01:06:36.275 --> 01:06:38.615
So this gets into, uh, into the, the,

1319
01:06:38.675 --> 01:06:39.775
the way the order is written

1320
01:06:40.115 --> 01:06:42.615
and, uh, like, uh, John said, uh, you know,

1321
01:06:42.615 --> 01:06:45.095
that's the way we, we do mitigations before,

1322
01:06:45.195 --> 01:06:47.815
and we keep the, the hazard level at, at the

1323
01:06:47.815 --> 01:06:50.095

before mitigations for, for a reason.

1324

01:06:50.195 --> 01:06:51.295

And, and we can get into that.

1325

01:06:51.315 --> 01:06:55.935

But, but, uh, you,

1326

01:06:56.565 --> 01:06:58.495

when you get to the after mitigations,

1327

01:06:58.555 --> 01:07:00.335

and then that's a residual risk.

1328

01:07:00.915 --> 01:07:02.055

And uh, what you,

1329

01:07:02.055 --> 01:07:05.415

what really counts there is the residual risk is

1330

01:07:05.775 --> 01:07:06.935

accepted or not accepted.

1331

01:07:07.915 --> 01:07:11.175

And I always look at it, okay, there's a residual risk,

1332

01:07:11.235 --> 01:07:15.215

but the real key is, are you going to accept that risk, uh,

1333

01:07:15.215 --> 01:07:18.495

that, that, uh, that hazard and go fly?

1334

01:07:19.475 --> 01:07:23.055

Uh, so I call it, instead of residual risk,

1335

01:07:23.215 --> 01:07:24.255

I call it acceptability

1336

01:07:24.255 --> 01:07:26.495

because that's really the bottom line of what you do,

1337

01:07:26.515 --> 01:07:27.775
the manager is going to accept

1338

01:07:27.775 --> 01:07:29.935
that risk when he signs that test plan.

1339

01:07:31.155 --> 01:07:33.935
And uh, and you can call it whatever you want,

1340

01:07:33.935 --> 01:07:35.735
but that's really an acceptability.

1341

01:07:35.995 --> 01:07:39.535
So you, you got a hazard, you mitigate to, to the extent

1342

01:07:39.535 --> 01:07:40.855
that you can, and then

1343

01:07:40.855 --> 01:07:43.895
that residual risk you accept or not accept.

1344

01:07:44.365 --> 01:07:45.535
Yeah. Amen. You, you

1345

01:07:45.535 --> 01:07:46.735
send 'em back, do some more homework.

1346

01:07:46.855 --> 01:07:48.695
'cause I'm not accepting that risk. There you

1347

01:07:48.695 --> 01:07:49.695
Go.

1348

01:07:49.775 --> 01:07:52.615
Identify unmitigated risk, mitigate to an acceptable level

1349

01:07:53.235 --> 01:07:54.615
and accept it or keep trying.

1350

01:07:57.875 --> 01:08:00.925

There's some why

1351

01:08:03.225 --> 01:08:08.045
air force not to you on

1352

01:08:08.045 --> 01:08:09.085
that day wanna

1353

01:08:09.535 --> 01:08:10.535
Right.

1354

01:08:11.045 --> 01:08:12.045
Resource. Yeah.

1355

01:08:12.345 --> 01:08:16.845
So yeah, you might still, you don't have to mitigate

1356

01:08:16.845 --> 01:08:18.205
that. Love that.

1357

01:08:18.845 --> 01:08:20.685
Interesting. Still Execute save

1358

01:08:20.685 --> 01:08:21.685
Time, huh?

1359

01:08:21.995 --> 01:08:24.965
Okay. Okay.

1360

01:08:26.175 --> 01:08:29.065
I don't disagree, but I'm thinking if there's a mitigation

1361

01:08:29.065 --> 01:08:32.065
that you told your team that you were gonna have implement

1362

01:08:32.125 --> 01:08:35.705
and you're not that date, well you

1363

01:08:35.705 --> 01:08:36.745
need to go talk to somebody, right?

1364

01:08:36.775 --> 01:08:38.745

Yeah. Yeah. Um, okay.

1365

01:08:39.605 --> 01:08:41.105

Um, and I'll, I'll wrap it up with this.

1366

01:08:41.125 --> 01:08:43.585

If you've all got your order, your instruction, whatever

1367

01:08:43.585 --> 01:08:45.185

that you follow to do this, right?

1368

01:08:45.565 --> 01:08:47.385

If you follow it to the t at a minimum

1369

01:08:47.445 --> 01:08:49.945

and nothing else, are you doing adequate risk management

1370

01:08:54.145 --> 01:08:57.445

or is there more that you can learn from best practices,

1371

01:08:57.445 --> 01:08:59.365

lessons learned from stuff like this?

1372

01:08:59.995 --> 01:09:02.525

Just if it's the bare minimum of what your instruction

1373

01:09:02.525 --> 01:09:04.045

or guiding policy says, that's great,

1374

01:09:04.625 --> 01:09:07.605

but we need you to use your judgment experience

1375

01:09:08.105 --> 01:09:10.485

to keep doing mitigation if it's appropriate.

1376

01:09:10.485 --> 01:09:15.405

Right. So we turn the corner here. Yeah.

1377

01:09:15.435 --> 01:09:16.685

Okay. Rod, what you got

1378

01:09:20.065 --> 01:09:24.125

Safety database built with the assumption and the

1379

01:09:24.125 --> 01:09:25.125

Caveat. Wait,

1380

01:09:25.125 --> 01:09:26.645

bring, you're gonna have to repeat yourself, rod.

1381

01:09:26.645 --> 01:09:29.045

There's a big red caution at the bottom, uh,

1382

01:09:29.105 --> 01:09:30.565

on the flight to safety database.

1383

01:09:30.565 --> 01:09:32.565

Yeah. And it says that this,

1384

01:09:32.715 --> 01:09:34.485

this should done by by professionals.

1385

01:09:34.485 --> 01:09:35.925

You know, that kind of statement.

1386

01:09:36.345 --> 01:09:40.285

But, but it's also, and I've seen this in the indu industry.

1387

01:09:40.385 --> 01:09:42.605

You, you, you just cut and paste and that's it.

1388

01:09:43.185 --> 01:09:45.565

You said you went to the fact this database. Yeah.

1389

01:09:45.705 --> 01:09:46.965

Uh, we're doing this maneuver

1390

01:09:46.985 --> 01:09:49.765

and this are the hazards industry standard and that's it.

1391
01:09:50.545 --> 01:09:53.285
And that's a very dangerous, uh, that's not, that's not

1392
01:09:53.285 --> 01:09:55.765
what the flight database was meant Yeah.

1393
01:09:55.785 --> 01:09:58.245
To do. Yeah. Because you take it as,

1394
01:09:58.345 --> 01:10:00.125
as an industry recommendation.

1395
01:10:00.905 --> 01:10:03.725
Uh, and then you, you do the mitigations yourself.

1396
01:10:03.745 --> 01:10:05.565
You still have to do the ho the homework and,

1397
01:10:05.625 --> 01:10:06.725
and tailor it to your program.

1398
01:10:07.745 --> 01:10:10.405
Um, but that some people are not doing that.

1399
01:10:10.635 --> 01:10:12.165
Yeah, absolutely.

1400
01:10:12.695 --> 01:10:15.125
Don't just go to the database, pull something down or cut

1401
01:10:15.125 --> 01:10:16.565
and paste from the previous time you did it.

1402
01:10:16.855 --> 01:10:18.245
We're gonna talk a little bit more about that.

1403
01:10:18.595 --> 01:10:20.525
What our hope is that you get with your test team,

1404
01:10:20.525 --> 01:10:23.325

you get in the room, you do the risk mitigation for your,

1405

01:10:23.595 --> 01:10:24.885

your specific situation

1406

01:10:25.265 --> 01:10:27.685

and then go look at the flight test data, uh,

1407

01:10:27.685 --> 01:10:30.245

flight test safety database, see what they've got there.

1408

01:10:30.245 --> 01:10:32.725

Maybe it'll inspire a little more thought or a second layer.

1409

01:10:32.995 --> 01:10:34.005

It's not a starting point.

1410

01:10:34.045 --> 01:10:36.525

I wouldn't recommend it as it's, it's, uh, something

1411

01:10:36.525 --> 01:10:39.085

to crosscheck quality control and,

1412

01:10:39.085 --> 01:10:41.285

and make sure you're a little more feel good.

1413

01:10:42.225 --> 01:10:44.045

Um, we're gonna go through these pretty quick,

1414

01:10:44.045 --> 01:10:45.045

these next couple slides.

1415

01:10:45.275 --> 01:10:46.845

They were interesting to me.

1416

01:10:47.425 --> 01:10:49.405

I'd say, and I'll just share a little bit with you.

1417

01:10:49.905 --> 01:10:51.285

Uh, as I went through

1418
01:10:51.305 --> 01:10:53.525
and looked at the different organization's policies,

1419
01:10:54.225 --> 01:10:56.205
it was really cool to compare and contrast them.

1420
01:10:56.355 --> 01:10:58.165
Okay? It's that 90% we got in common,

1421
01:10:58.425 --> 01:11:01.605
but the 10% is where the friction is for.

1422
01:11:01.995 --> 01:11:03.685
This is hard to read. You might have to look in your book,

1423
01:11:03.685 --> 01:11:07.005
but bottom line, we got FA, a, Neva Air Force,

1424
01:11:07.055 --> 01:11:08.525
joint Strike Fighter National,

1425
01:11:09.105 --> 01:11:12.285
and then what's in the NASA flight test database, right?

1426
01:11:12.585 --> 01:11:16.405
So this process we've got, the good news is we all agree

1427
01:11:16.405 --> 01:11:19.485
that in our ths we're gonna have

1428
01:11:20.105 --> 01:11:22.085
effect cause hazard are in there.

1429
01:11:23.305 --> 01:11:25.805
But the language gets a little different when we talk about

1430
01:11:26.115 --> 01:11:27.965
mitigations, for example,

1431
01:11:28.265 --> 01:11:31.965

in nave we call 'em precautionary measures in,

1432

01:11:33.345 --> 01:11:37.085

um, uh, national,

1433

01:11:37.105 --> 01:11:38.525

you call 'em minimizing procedures.

1434

01:11:38.525 --> 01:11:40.885

Just a little difference in our nomenclature there. Okay?

1435

01:11:41.305 --> 01:11:44.685

You go down to eps Neva, we call them corrective actions.

1436

01:11:45.575 --> 01:11:49.105

Other folks call them mitigations or eps.

1437

01:11:49.375 --> 01:11:50.785

I'll just throw it out there because again,

1438

01:11:50.785 --> 01:11:52.185

we've got a little bit of different language.

1439

01:11:52.185 --> 01:11:54.225

You're gonna break up into groups of 10 later on

1440

01:11:54.845 --> 01:11:56.985

and somebody may use a little different verbiage.

1441

01:11:57.235 --> 01:11:59.105

Today we're going to the 40 40 26.

1442

01:11:59.125 --> 01:12:01.665

And that's in the left column, the language we we're using.

1443

01:12:02.015 --> 01:12:03.585

Okay, note down here,

1444

01:12:03.655 --> 01:12:05.825

what risk level is put on the THA sheet

1445
01:12:07.405 --> 01:12:10.305
and the 40, 40 26, it wants unmitigated risk.

1446
01:12:11.275 --> 01:12:14.975
All the other orders I'D surveyed on that list,

1447
01:12:15.165 --> 01:12:17.095
it's the mitigated risk.

1448
01:12:17.595 --> 01:12:19.415
And national, I think sets a good example.

1449
01:12:19.795 --> 01:12:21.215
In their template, they have both

1450
01:12:21.725 --> 01:12:23.295
unmitigated and residual risk.

1451
01:12:24.925 --> 01:12:26.625
And in the template we give you later on today,

1452
01:12:26.625 --> 01:12:28.305
there's gonna be room for both of those on there.

1453
01:12:28.695 --> 01:12:29.745
We'd like to see them on there.

1454
01:12:31.015 --> 01:12:32.545
Okay, a little more academic interest.

1455
01:12:32.545 --> 01:12:33.665
This is impossible to read,

1456
01:12:33.685 --> 01:12:35.985
but I wanted to show One thing is the

1457
01:12:35.985 --> 01:12:38.065
40, 40, 26 templates are examples.

1458
01:12:38.065 --> 01:12:40.985

They're not required. You can use a different format.

1459

01:12:41.315 --> 01:12:43.385

These are what's in there. You see one is tabular,

1460

01:12:44.005 --> 01:12:48.505

one is a little more narrative looking to Neva.

1461

01:12:48.565 --> 01:12:50.225

Here's another tabular one.

1462

01:12:50.535 --> 01:12:54.335

This has residual and unmitigated risk on it, which is nice.

1463

01:12:54.925 --> 01:12:59.375

This narrative format is another option. I like it.

1464

01:12:59.495 --> 01:13:00.535

'cause you can put more stuff on there.

1465

01:13:00.535 --> 01:13:03.215

You can really explode out the bullets.

1466

01:13:03.595 --> 01:13:04.935

What's the, what's the downside to that?

1467

01:13:04.935 --> 01:13:06.535

If you make the t a's too

1468

01:13:06.585 --> 01:13:11.125

wordy, what do you, what do you do?

1469

01:13:11.125 --> 01:13:15.245

In every brief? You gotta brief the applicable T a's, right?

1470

01:13:15.545 --> 01:13:18.085

So there's a risk in itself of having 20 minutes of

1471

01:13:18.785 --> 01:13:20.805

the pilot droning on reading verbatim, right?

1472
01:13:22.025 --> 01:13:26.005
Um, this is, uh, from Rod shared us this, that he's got, uh,

1473
01:13:26.075 --> 01:13:28.925
nine different hazards on this THA worksheet.

1474
01:13:30.605 --> 01:13:33.465
And he is got them enumerated and then he cross references.

1475
01:13:35.075 --> 01:13:36.685
Okay? So that is an approach.

1476
01:13:39.025 --> 01:13:42.395
This is nationals. It's got, uh, hazard cause effect.

1477
01:13:43.595 --> 01:13:45.315
I don't know if that can anybody from national,

1478
01:13:45.615 --> 01:13:48.795
can you get more verbiage in this cause block

1479
01:13:48.795 --> 01:13:50.195
or is that all the space you have?

1480
01:13:50.195 --> 01:13:53.745
Anybody know Ed?

1481
01:13:59.485 --> 01:14:02.535
Yeah, typically we just leave, uh, what's in there.

1482
01:14:02.675 --> 01:14:05.855
We want to keep it as short and simple as possible.

1483
01:14:05.995 --> 01:14:09.335
We may have, uh, four or five tpha for a particular test.

1484
01:14:09.365 --> 01:14:11.205
Like yeah, maneuvering stability.

1485
01:14:11.945 --> 01:14:14.365

And in a training environment, you don't want

1486

01:14:14.365 --> 01:14:17.125

to overload the students either reading the tpha

1487

01:14:17.125 --> 01:14:19.045

that already exist or writing their own.

1488

01:14:19.305 --> 01:14:21.365

It makes it simpler if you just keep

1489

01:14:21.365 --> 01:14:22.845

the block small like that. Yeah.

1490

01:14:23.155 --> 01:14:25.445

Okay. Fair enough. I'll tell you pet peeve of mine.

1491

01:14:25.525 --> 01:14:26.725

I feel like we are constrained

1492

01:14:26.725 --> 01:14:28.565

by these templates and by these formats.

1493

01:14:28.965 --> 01:14:31.285

I wish we could do tpha with like

1494

01:14:31.395 --> 01:14:32.725

that movie, uh, Tom Cruise.

1495

01:14:32.745 --> 01:14:34.845

He had the, uh, minority report, right?

1496

01:14:35.075 --> 01:14:36.485

Just like sticky notes on

1497

01:14:36.485 --> 01:14:37.565

a whiteboard or something like that.

1498

01:14:37.565 --> 01:14:39.005

Just put all the information out there.

1499
01:14:39.035 --> 01:14:40.645
Tell the stories, the different threads

1500
01:14:41.105 --> 01:14:42.405
and then how you're gonna mitigate them.

1501
01:14:42.405 --> 01:14:44.445
Wouldn't that be cool? Instead, we're constrained

1502
01:14:44.445 --> 01:14:47.205
by these like eight and a half by 11 things.

1503
01:14:48.125 --> 01:14:49.415
I don't think it does its justice.

1504
01:14:49.595 --> 01:14:51.495
But if you start with a whiteboard

1505
01:14:51.715 --> 01:14:52.975
or a clean sheet of white paper

1506
01:14:53.865 --> 01:14:56.845
and then translate it onto the template, maybe that's

1507
01:14:56.845 --> 01:14:58.925
how we can at least call out the important stuff

1508
01:14:59.945 --> 01:15:02.205
on the right is, uh, from the flight test safety database.

1509
01:15:02.205 --> 01:15:03.445
This is a printout. It's unreadable,

1510
01:15:03.465 --> 01:15:04.845
but that's what it looks like.

1511
01:15:05.135 --> 01:15:08.085
Noteworthy on there. There are no effects in this flight

1512
01:15:08.085 --> 01:15:09.645

test safety database output.

1513

01:15:12.515 --> 01:15:15.245

Okay? And uh, finally, this is from Gulfstream.

1514

01:15:15.565 --> 01:15:17.485

Er shared this with us.

1515

01:15:17.585 --> 01:15:19.565

So a little, you know, they've got plenty

1516

01:15:19.565 --> 01:15:20.645

of room for mitigations there.

1517

01:15:21.495 --> 01:15:22.995

Um, and some stuff up on top.

1518

01:15:23.855 --> 01:15:24.835

All right, we're wrapping it up and then

1519

01:15:24.835 --> 01:15:25.755

we're gonna go to some examples.

1520

01:15:25.755 --> 01:15:28.395

Okay? Here's, uh, some more best practice

1521

01:15:28.955 --> 01:15:30.835

goodness things for brainstorming.

1522

01:15:31.135 --> 01:15:33.635

Here's if in my mind's eye, if I could, you know,

1523

01:15:34.105 --> 01:15:36.155

give a Coke to everybody and make THA risk

1524

01:15:36.155 --> 01:15:37.435

management wonderful in the world.

1525

01:15:37.855 --> 01:15:38.875

Here's how you would do it.

1526
01:15:39.725 --> 01:15:41.995
You'd get together with your test team, you'd go

1527
01:15:41.995 --> 01:15:43.435
to a quiet room with a big whiteboard

1528
01:15:44.375 --> 01:15:46.515
and you'd say, here's what we're doing in

1529
01:15:46.515 --> 01:15:47.675
this test, what could go wrong?

1530
01:15:47.675 --> 01:15:48.795
And you just go to the whiteboard

1531
01:15:49.055 --> 01:15:50.355
and you start writing stuff down

1532
01:15:51.255 --> 01:15:53.275
and then you find where the storylines are

1533
01:15:53.545 --> 01:15:55.715
that jump out at you and you start making connections on the

1534
01:15:55.715 --> 01:15:57.155
whiteboard and then you start cleaning it up.

1535
01:15:57.295 --> 01:15:59.715
But it's this iterative process where you're with your team,

1536
01:15:59.715 --> 01:16:01.715
you're not alone and you sort

1537
01:16:01.715 --> 01:16:03.715
of just be creative and see where it goes.

1538
01:16:04.025 --> 01:16:06.475
Knowing that ultimately you gotta crank out these

1539
01:16:06.705 --> 01:16:08.235

tpha, but that's where it starts.

1540

01:16:09.245 --> 01:16:11.435

Conversely, have you guys ever had this experience?

1541

01:16:13.585 --> 01:16:15.675

It's seven at night, you're sitting at your computer,

1542

01:16:15.775 --> 01:16:18.275

the little cursor's blinking at you and you gotta crank out.

1543

01:16:18.395 --> 01:16:19.755

T ha's for tomorrow's review

1544

01:16:20.405 --> 01:16:23.465

and you just sitting alone start hammering out the template.

1545

01:16:24.215 --> 01:16:29.105

Does that ever happen? No. Wait, it does.

1546

01:16:29.165 --> 01:16:30.825

And we wanna get away from that. Okay?

1547

01:16:31.565 --> 01:16:33.385

So here's brainstorming 1 0 1. You got it there.

1548

01:16:33.385 --> 01:16:35.745

We don't need to beat all this. Brainstorm as a team, right?

1549

01:16:35.745 --> 01:16:37.785

Just like I said, use a whiteboard. Whiteboards are awesome.

1550

01:16:38.485 --> 01:16:41.745

Or at naval test pilot school, you can use a chalkboard.

1551

01:16:41.765 --> 01:16:45.035

If you're old school, tell the story.

1552

01:16:45.515 --> 01:16:48.115

Remember how we talked about what could go wrong? Why?

1553

01:16:48.295 --> 01:16:53.125

So what identify where safety control is lost.

1554

01:16:53.735 --> 01:16:55.125

Going back to what Huffer talked about.

1555

01:16:55.175 --> 01:16:58.245

Where in that narrative are you out of the loop

1556

01:16:58.265 --> 01:17:00.165

and things are just happening and you're reacting?

1557

01:17:01.475 --> 01:17:03.895

And that may help you narrow down where the hazard is, is

1558

01:17:05.125 --> 01:17:08.135

isolate the hazard, then figure out what your causes

1559

01:17:08.135 --> 01:17:10.625

and effects are and you can

1560

01:17:10.625 --> 01:17:11.945

clump 'em together like we talked about.

1561

01:17:13.255 --> 01:17:15.755

Or often there's some different storylines, right?

1562

01:17:15.975 --> 01:17:18.595

And that's where we can break out different hazards and,

1563

01:17:18.615 --> 01:17:20.075

and build the ths for them.

1564

01:17:23.635 --> 01:17:24.635

Remember I said be objective in

1565

01:17:24.635 --> 01:17:25.675

your subjective risk assessment.

1566

01:17:25.685 --> 01:17:27.315

Don't start with a foregone conclusion.

1567

01:17:31.175 --> 01:17:32.995

That's the reverse engineering. Don't do that.

1568

01:17:33.725 --> 01:17:36.035

Don't be constrained by your template. Don't start there.

1569

01:17:37.165 --> 01:17:39.355

Think freely and then mold it

1570

01:17:39.355 --> 01:17:40.715

to whatever your organization demands.

1571

01:17:41.135 --> 01:17:43.475

And don't start just by tapping at the computer alone at

1572

01:17:43.475 --> 01:17:44.835

night with a glass of red wine.

1573

01:17:47.445 --> 01:17:49.665

Any other tips? Best practices on how you,

1574

01:17:50.215 --> 01:17:52.305

your teams go about doing this

1575

01:17:52.305 --> 01:17:57.235

process? Else.

1576

01:17:57.705 --> 01:18:00.935

Else? Okay, talk

1577

01:18:00.935 --> 01:18:02.335

to other folks that are familiar with it.

1578

01:18:03.445 --> 01:18:05.465

Mel, is it Mel or Mel Mal?

1579

01:18:12.395 --> 01:18:13.395

Yeah.

1580

01:18:14.425 --> 01:18:17.925

And they part document

1581

01:18:18.865 --> 01:18:22.135

has paragraph by paragraph management material

1582

01:18:22.195 --> 01:18:23.215

before you get to that.

1583

01:18:24.085 --> 01:18:25.765

Interesting. So the rationale.

1584

01:18:27.275 --> 01:18:30.695

Yeah, that's very cool.

1585

01:18:31.115 --> 01:18:32.975

Mal at Airbus, they use minutes for meetings.

1586

01:18:33.045 --> 01:18:35.975

They document the discussion they had outside sort

1587

01:18:35.975 --> 01:18:37.455

of like a comment box and then it points

1588

01:18:37.475 --> 01:18:39.255

to whatever goes in your THA.

1589

01:18:39.715 --> 01:18:42.215

And we certainly within your point,

1590

01:18:42.535 --> 01:18:46.835

I mean we certainly would agree for these TA one by one

1591

01:18:49.635 --> 01:18:52.085

That that may be it's organizationally dependent.

1592

01:18:52.155 --> 01:18:53.685

Yeah. But if the,

1593

01:18:53.705 --> 01:18:55.845

if the hazards applicable in what you're doing that day.

1594

01:18:56.305 --> 01:18:58.765

My experience has been you brief the THA

1595

01:18:59.525 --> 01:19:01.605

'cause what we would ensure is that the risk production

1596

01:19:03.245 --> 01:19:04.245

Yeah. Are reflected

1597

01:19:04.245 --> 01:19:06.315

in test

1598

01:19:06.345 --> 01:19:07.345

Card. Okay.

1599

01:19:07.345 --> 01:19:07.715

Interesting.

1600

01:19:12.085 --> 01:19:14.885

Okay, couple more. Yep.

1601

01:19:15.305 --> 01:19:19.005

Review past accidents. Review past accidents. Yeah.

1602

01:19:19.675 --> 01:19:22.125

Make sure the hazard, uh, makes sense

1603

01:19:22.185 --> 01:19:23.685

to the one that's experience.

1604

01:19:27.395 --> 01:19:29.565

Make, make sure I don't understand.

1605

01:19:29.565 --> 01:19:34.005

Make sure the hazard makes sense to the user. Okay. Yeah.

1606

01:19:34.175 --> 01:19:37.165

Experience. Yeah. Okay. Sometimes.

1607

01:19:40.295 --> 01:19:43.665

Yeah. Okay. Fair enough. Yeah. Keep it. Yeah. Right.

1608

01:19:44.245 --> 01:19:45.985

How gonna actually execute.

1609

01:19:55.555 --> 01:19:57.335

Yes, yes. He goes without saying,

1610

01:19:57.355 --> 01:19:58.935

but make sure you have all the right people

1611

01:20:00.195 --> 01:20:01.195

In the process. Yeah,

1612

01:20:01.195 --> 01:20:02.255

absolutely. Who would the,

1613

01:20:02.255 --> 01:20:03.575

he says make sure all the right people are.

1614

01:20:03.575 --> 01:20:05.695

Can we get the mic? I just wanna make sure everybody can

1615

01:20:05.695 --> 01:20:08.245

hear, make sure all the right people are there when we're

1616

01:20:08.245 --> 01:20:09.685

doing our chha.

1617

01:20:11.135 --> 01:20:12.345

That you know what beg question

1618

01:20:12.345 --> 01:20:17.345

that begs right. Who would those people be?

1619

01:20:17.775 --> 01:20:19.905

Like you said, the air crew that's involved.

1620

01:20:19.965 --> 01:20:21.425

The right engineers, you know the,

1621

01:20:21.785 --> 01:20:23.585

whatever disciplines you're dealing with, you need

1622

01:20:23.585 --> 01:20:24.665

to all there, right?

1623

01:20:25.725 --> 01:20:27.785

How about safety? Certainly a

1624

01:20:27.785 --> 01:20:29.625

safety guy to guide the process. Yep.

1625

01:20:29.835 --> 01:20:33.185

Thank you. Alright,

1626

01:20:33.605 --> 01:20:34.945

so we're not, we're not done yet.

1627

01:20:34.945 --> 01:20:37.145

We're gonna do a little bit at, at the whiteboard nine to,

1628

01:20:37.235 --> 01:20:38.545

we're gonna work through an example together.

1629

01:20:38.895 --> 01:20:40.225

Okay? And then we're gonna

1630

01:20:40.225 --> 01:20:41.345

break for lunch and it's gonna be awesome.

1631

01:20:41.525 --> 01:20:42.425

And then we're gonna come back and

1632

01:20:42.425 --> 01:20:43.465

we're gonna hammer the panel.

1633

01:20:44.365 --> 01:20:46.705

Really tough questions. Who's on the panel?

1634

01:20:49.175 --> 01:20:51.985

Okay, good. It's a great panel. I say that in jest.

1635

01:20:53.725 --> 01:20:56.905

Uh, I think that's it here. Um, we'll come back to this.

1636

01:20:56.935 --> 01:20:58.585

Okay, references are up there.

1637

01:20:59.035 --> 01:21:00.185

Let's go back to, um,

1638

01:21:00.775 --> 01:21:02.105

well we're gonna start in a new example.

1639

01:21:02.255 --> 01:21:06.505

Okay? Um, I'm going to describe the test to you. Okay?

1640

01:21:06.505 --> 01:21:07.945

It's pretty simple. I wanted to keep it simple.

1641

01:21:08.105 --> 01:21:12.105

I almost didn't use an aircraft example, I won't go there.

1642

01:21:12.805 --> 01:21:14.825

Um, F 35

1643

01:21:15.365 --> 01:21:17.425

max performance brake testing, for lack of a better word.

1644

01:21:17.425 --> 01:21:19.705

We went out to Edwards Air Force Base where they have a one

1645

01:21:19.705 --> 01:21:23.025

of a kind in the world surface that's flat enough

1646

01:21:23.025 --> 01:21:26.145

to hold water if I, hopefully I'm saying this correctly.

1647

01:21:26.725 --> 01:21:29.905

And we would, uh, it was sort of like this

1648

01:21:31.525 --> 01:21:33.775

caravan of trucks would go down the runway,

1649

01:21:34.325 --> 01:21:35.495

fire trucks spraying water,

1650

01:21:35.795 --> 01:21:37.975

and then another truck spraying shampoo

1651

01:21:38.195 --> 01:21:39.415

or something slippery on it,

1652

01:21:39.795 --> 01:21:41.815

and then another truck with a wheel

1653

01:21:41.845 --> 01:21:43.775

that would measure the friction.

1654

01:21:44.755 --> 01:21:45.935

And so they all go running down,

1655

01:21:45.935 --> 01:21:48.055

they report the RVR back to the test team.

1656

01:21:48.055 --> 01:21:49.335

The test team's like, yeah, let's go.

1657

01:21:49.335 --> 01:21:50.695

And, you know, you gotta get the test

1658

01:21:50.695 --> 01:21:53.015

before the, the breeze kicks up or it evaporates.

1659

01:21:53.595 --> 01:21:55.495

So F 35, and here's where the test is, okay?

1660

01:21:55.495 --> 01:21:57.375

You got your test team, they're gonna be in the jet,

1661
01:21:57.475 --> 01:22:00.935
run up the power accelerate to target, let's say max speed.

1662
01:22:00.955 --> 01:22:03.975
Who, who did anybody do this? How, how fast did we go?

1663
01:22:06.695 --> 01:22:08.605
One 20.

1664
01:22:08.955 --> 01:22:12.765
Yeah, one 20 fast and then hit the brakes.

1665
01:22:13.035 --> 01:22:15.445
Step input 0.1 second, full brake deflection

1666
01:22:17.285 --> 01:22:18.295
and see what happens.

1667
01:22:22.725 --> 01:22:27.415
Okay? What could go wrong? So let's go to the board.

1668
01:22:27.485 --> 01:22:29.175
Okay? That's your test. That's our example.

1669
01:22:29.565 --> 01:22:30.295
What could go wrong?

1670
01:22:34.125 --> 01:22:34.615
Blue tire.

1671
01:22:43.965 --> 01:22:48.375
I want 'em louder. Depart runway. I heard skid

1672
01:22:49.845 --> 01:22:50.845
Side.

1673
01:22:51.135 --> 01:22:52.135
Uh,

1674
01:22:53.305 --> 01:22:54.305

Okay. Um,

1675

01:22:54.305 --> 01:22:54.855

1676

01:22:56.935 --> 01:22:57.355

The, uh,

1677

01:23:06.635 --> 01:23:09.285

Loss of directional control Roll.

1678

01:23:09.625 --> 01:23:13.165

No breaks. Loss of brake, no breaks. I like no breaks.

1679

01:23:19.825 --> 01:23:22.435

Okay, you got, we could keep going, right?

1680

01:23:23.035 --> 01:23:25.275

I just ran outta space. But imagine your big whiteboard

1681

01:23:25.275 --> 01:23:26.755

or you're Tom Cruise doing your thing, right?

1682

01:23:26.935 --> 01:23:28.115

We just wanna get it all out there

1683

01:23:29.135 --> 01:23:30.275

and we're gonna move on for the

1684

01:23:30.275 --> 01:23:31.395

sake of the learning objective here.

1685

01:23:31.395 --> 01:23:32.515

But you got it right? Go

1686

01:23:32.515 --> 01:23:33.795

to the whiteboard, just put it all out there.

1687

01:23:33.975 --> 01:23:36.115

We got creativity, we're throwing stuff on the board.

1688

01:23:36.135 --> 01:23:39.755
Not, there's no wrong answer. Now take a pause and see.

1689
01:23:39.775 --> 01:23:41.035
Can, are there any connections here

1690
01:23:41.295 --> 01:23:42.675
as we look at our narrative?

1691
01:23:42.935 --> 01:23:46.885
Do any of these maybe go together? Um, hot brakes.

1692
01:23:48.265 --> 01:23:49.965
Hot brakes could lead to a blown tire.

1693
01:23:50.025 --> 01:23:54.495
It could lead to a skid could lead to depart the runway.

1694
01:23:56.585 --> 01:24:00.085
Okay, let's go with a

1695
01:24:00.795 --> 01:24:01.805
loss of direction extra.

1696
01:24:01.805 --> 01:24:03.565
Yeah, we see how we can move 'em all together.

1697
01:24:03.625 --> 01:24:05.765
So you're gonna, I want us

1698
01:24:05.765 --> 01:24:07.285
to keep seeing this, but I don't have enough.

1699
01:24:07.285 --> 01:24:09.725
Well, you know what? Here we go. There you go.

1700
01:24:09.725 --> 01:24:11.605
It's brilliant. 21st century.

1701
01:24:12.925 --> 01:24:13.605
I keep saying that

1702

01:24:17.975 --> 01:24:18.925
we're gonna go with no breaks.

1703

01:24:18.935 --> 01:24:20.805
Break failure. Okay, just for the sake of learning,

1704

01:24:21.275 --> 01:24:22.325
just go with me on this.

1705

01:24:22.375 --> 01:24:23.965
These are all things we need to tease out,

1706

01:24:24.345 --> 01:24:25.605
but just pick one for this sake.

1707

01:24:25.605 --> 01:24:27.445
We're identifying hazards, we're telling the story.

1708

01:24:28.015 --> 01:24:32.285
Break failure, And we've got our,

1709

01:24:33.505 --> 01:24:36.765
our condition or our action, which is, uh,

1710

01:24:37.785 --> 01:24:40.055
let's call it max break test.

1711

01:24:41.975 --> 01:24:44.135
Remember we're telling a story and we tell tragedies, right?

1712

01:24:44.155 --> 01:24:46.775
So how's this gonna end? Damage or injury, right?

1713

01:24:47.235 --> 01:24:48.375
So we said what could go wrong?

1714

01:24:49.195 --> 01:24:51.735
Why would we have a break failure? And we can go here.

1715

01:24:51.835 --> 01:24:54.815
Is there anything up here? Why would, why would this happen?

1716
01:24:55.965 --> 01:24:56.965
Hide, leak,

1717
01:25:00.365 --> 01:25:01.365
Ice, excuse.

1718
01:25:09.285 --> 01:25:11.305
Yep. I would lump all these in.

1719
01:25:12.235 --> 01:25:15.245
Maybe, uh, like hardware failure, right?

1720
01:25:15.705 --> 01:25:16.845
And they're gonna be a lot of 'em. We're gonna,

1721
01:25:16.845 --> 01:25:17.925
we're gonna explode 'em all out.

1722
01:25:17.945 --> 01:25:22.445
Not our huge whiteboard, right? Um, so hardware failure.

1723
01:25:23.845 --> 01:25:25.035
These are modern aircraft.

1724
01:25:25.035 --> 01:25:27.755
What do you think controls the braking software? Software.

1725
01:25:27.975 --> 01:25:28.995
So software failure.

1726
01:25:32.135 --> 01:25:33.345
What else? Pilot

1727
01:25:33.355 --> 01:25:34.355
Error. Pilot

1728
01:25:34.355 --> 01:25:35.985
error. Impossible.

1729

01:25:40.105 --> 01:25:44.075

Okay. Say, okay, we got it. Learning objective.

1730

01:25:44.135 --> 01:25:46.875

We, we said what could go wrong and why, right?

1731

01:25:49.195 --> 01:25:50.615

So what? Yeah,

1732

01:25:51.355 --> 01:25:52.815

You say a procedural error.

1733

01:25:55.475 --> 01:25:56.475

I'm not saying

1734

01:25:57.565 --> 01:26:01.525

Yeah, yeah.

1735

01:26:02.025 --> 01:26:05.275

Oh yeah, absolutely. Um, yeah.

1736

01:26:05.965 --> 01:26:08.315

Break application energy.

1737

01:26:09.735 --> 01:26:13.355

Yep. Um, yeah, break energy. And I'm running outta room.

1738

01:26:13.675 --> 01:26:15.595

I know it's hard to see, but I know what you're saying

1739

01:26:15.835 --> 01:26:17.315

'cause I know where you're going with that, right?

1740

01:26:17.315 --> 01:26:19.675

Because then I say, so what? And you say hot breaks.

1741

01:26:19.815 --> 01:26:21.475

And then I say, so what? And where you gonna say,

1742

01:26:23.175 --> 01:26:25.915
or what, what happens with hot brakes?

1743
01:26:26.575 --> 01:26:28.675
That's the next THA we're gonna do. Okay?

1744
01:26:28.675 --> 01:26:31.235
Because I think that would be a story of its own, don't you?

1745
01:26:32.335 --> 01:26:35.395
So brake failure. So what, let's go with this. Brakes fail.

1746
01:26:35.775 --> 01:26:38.545
So what, why would I run off the runway?

1747
01:26:39.495 --> 01:26:41.755
What if it was a symmetric brake failure

1748
01:26:41.935 --> 01:26:43.035
and they both failed at the same time?

1749
01:26:44.665 --> 01:26:46.205
It could still be go off the overrun. Okay.

1750
01:26:46.205 --> 01:26:47.325
Yeah, fair enough. Brake failure.

1751
01:26:47.945 --> 01:26:51.505
Um, uh, go off runway.

1752
01:26:51.565 --> 01:26:53.225
Is that how I wanna say it? Overrun.

1753
01:26:53.565 --> 01:26:53.985
Depart.

1754
01:26:54.845 --> 01:26:58.625
Depart, prepared surface.

1755
01:26:58.735 --> 01:27:01.665
Okay, you got it. So what if I depart a prepared surface

1756

01:27:04.295 --> 01:27:08.615
damage aircraft would hit something,

1757

01:27:08.945 --> 01:27:09.295
crash,

1758

01:27:10.185 --> 01:27:14.755
crash, hit something.

1759

01:27:16.735 --> 01:27:18.395
Now you could just say maybe you don't hit anything.

1760

01:27:18.395 --> 01:27:20.395
Maybe you get a landing gear overstress or something.

1761

01:27:20.585 --> 01:27:22.235
That may be another narrative, right?

1762

01:27:22.415 --> 01:27:23.835
So I'm gonna put landing gear over here.

1763

01:27:24.225 --> 01:27:26.235
What if we hit something? So what if we hit something

1764

01:27:27.995 --> 01:27:28.995
Damage?

1765

01:27:29.275 --> 01:27:32.135
Yep. Um, injury or damage, right?

1766

01:27:36.485 --> 01:27:38.575
Okay, we've oversimplified it. But you see the process.

1767

01:27:38.835 --> 01:27:41.095
Did, did I go in there and say, Hey, what's the hazard?

1768

01:27:42.235 --> 01:27:43.255
And then you said, this is the hazard.

1769

01:27:43.315 --> 01:27:44.375
And we started building around that.

1770
01:27:44.395 --> 01:27:45.575
No, we're not there yet.

1771
01:27:45.575 --> 01:27:50.525
This is that 1.5, but we got our story, initial condition.

1772
01:27:51.245 --> 01:27:53.295
It's a tragedy. We have damage or injury.

1773
01:27:53.635 --> 01:27:56.175
And now let's think about what's the hazard,

1774
01:27:56.355 --> 01:27:57.855
what's the effect and what's the cause?

1775
01:27:58.515 --> 01:28:01.055
And based on our understanding of the definitions we had,

1776
01:28:01.655 --> 01:28:04.255
remember an effect was something that ties directly

1777
01:28:04.275 --> 01:28:05.935
to damage or injury.

1778
01:28:06.635 --> 01:28:08.255
And then upstream of that in our narrative

1779
01:28:08.755 --> 01:28:09.935
is probably where the hazard is.

1780
01:28:10.235 --> 01:28:11.415
If we go too far upstream,

1781
01:28:11.505 --> 01:28:12.895
we're probably looking at causes, right?

1782
01:28:15.105 --> 01:28:16.285
So I'm almost afraid to ask,

1783

01:28:18.555 --> 01:28:19.885

what do you guys think the hazard is?

1784

01:28:20.985 --> 01:28:22.455

Brake failure. Brake failure.

1785

01:28:23.155 --> 01:28:24.255

No. No.

1786

01:28:28.525 --> 01:28:29.685

Okay, so I got brake failure

1787

01:28:29.785 --> 01:28:31.405

or depart the runway and hit something.

1788

01:28:32.065 --> 01:28:34.165

Why? Well, tell me why. Who said depart face?

1789

01:28:34.165 --> 01:28:36.245

Why depart the, or, uh, brake failure.

1790

01:28:38.885 --> 01:28:42.705

Oh, you didn't, I'm sorry. Oh, Brock. Brock did.

1791

01:28:43.325 --> 01:28:44.545

But, uh, just share us your thinking.

1792

01:28:44.545 --> 01:28:46.585

I mean this is all like, remember we're fair-minded, right?

1793

01:28:46.585 --> 01:28:47.745

Intellectual critical thinking.

1794

01:28:47.745 --> 01:28:49.785

Johnny OI get an a plus for day two gold stars.

1795

01:28:50.475 --> 01:28:54.665

Great failure. The hazard that'll lead to effect by,

1796

01:28:56.865 --> 01:28:57.865
Okay. Oh, it leads

1797
01:28:57.865 --> 01:28:58.875
to him. Right, right, right.

1798
01:28:58.985 --> 01:29:00.475
It's how far upstream do we go

1799
01:29:00.475 --> 01:29:02.125
before we draw a big box around the hazard?

1800
01:29:02.145 --> 01:29:04.405
That's sort of the question at hand. And so

1801
01:29:05.225 --> 01:29:06.225
By the process.

1802
01:29:06.915 --> 01:29:07.855
Yep. What?

1803
01:29:20.145 --> 01:29:22.035
Yeah, so, and, and that loss

1804
01:29:22.035 --> 01:29:23.675
of safety control isn't necessarily where the hazard,

1805
01:29:23.775 --> 01:29:24.955
but it helps us narrow it in.

1806
01:29:24.955 --> 01:29:28.755
Right? I I like your logic too. Um, any other thoughts?

1807
01:29:35.275 --> 01:29:36.395
Interesting. So would we combine,

1808
01:29:36.395 --> 01:29:39.355
would we call a hazard something compound like that? Then

1809
01:29:39.355 --> 01:29:40.355
You have a departure.

1810

01:29:45.545 --> 01:29:47.835

Well that's interesting. I yeah, it is.

1811

01:29:48.335 --> 01:29:50.555

So you're saying, for example, the hazard might be departure

1812

01:29:50.665 --> 01:29:53.675

from a controlled surface due to brake failure?

1813

01:29:57.255 --> 01:29:58.255

Oh yeah,

1814

01:30:02.965 --> 01:30:03.255

Yeah,

1815

01:30:07.925 --> 01:30:08.925

Yeah.

1816

01:30:10.925 --> 01:30:13.015

Okay. So we will put a box

1817

01:30:13.015 --> 01:30:14.175

up here on the hazard at some point.

1818

01:30:14.195 --> 01:30:16.655

But what if you get to the SRB

1819

01:30:17.635 --> 01:30:19.015

and um, the approver's sitting there

1820

01:30:19.315 --> 01:30:21.375

and you have this big discussion about, you know,

1821

01:30:21.375 --> 01:30:23.295

where is it this or this.

1822

01:30:24.345 --> 01:30:26.615

Isn't it more important that you've gone through the process

1823

01:30:27.725 --> 01:30:29.025
and you've talked about all these things?

1824
01:30:29.685 --> 01:30:32.105
Yes. Yeah. And then if we wanna nudge

1825
01:30:32.105 --> 01:30:33.225
it one way or the other, that's fine.

1826
01:30:33.805 --> 01:30:36.355
But what's cool is we didn't just say brake failure

1827
01:30:36.535 --> 01:30:37.835
and then build a house around that.

1828
01:30:37.835 --> 01:30:39.115
And if you pull out brake failure,

1829
01:30:39.255 --> 01:30:40.355
the whole house collapses.

1830
01:30:40.565 --> 01:30:44.395
Right? So that's I think sort of my parting mindset

1831
01:30:44.425 --> 01:30:45.435
that I would share with you guys.

1832
01:30:45.535 --> 01:30:47.075
Go through this first, tell the story

1833
01:30:47.465 --> 01:30:50.295
what could go wrong, why would that happen?

1834
01:30:51.405 --> 01:30:54.165
And so what? And tease out the different narratives.

1835
01:30:54.165 --> 01:30:55.445
Look, we're gonna come back to brake fire.

1836
01:30:55.445 --> 01:30:56.685
That's another narrative. I want to tell

1837

01:30:56.685 --> 01:30:58.285
that story too and understand that.

1838

01:30:58.985 --> 01:31:01.885
And then we go to step two and we can identify the hazard.

1839

01:31:01.885 --> 01:31:03.125
There it come, it becomes easy

1840

01:31:03.125 --> 01:31:06.205
after this, you know, and the mitigations.

1841

01:31:06.245 --> 01:31:07.165
I think we're pretty good at that

1842

01:31:07.165 --> 01:31:08.165
once we get that nailed down.

1843

01:31:09.235 --> 01:31:13.095
Okay, do I dare put a box around something?

1844

01:31:13.095 --> 01:31:15.335
We gotta do step number two. All right.

1845

01:31:20.715 --> 01:31:22.095
Oh, Huffer says break fail.

1846

01:31:22.605 --> 01:31:24.575
Okay man, I'm, I don't even know if I,

1847

01:31:24.615 --> 01:31:25.975
I told Huffer I was afraid of doing this.

1848

01:31:26.175 --> 01:31:29.005
'cause there's so many different things. I'll tell you what,

1849

01:31:29.005 --> 01:31:29.645
I'm not gonna do it

1850

01:31:33.785 --> 01:31:35.085
Huffer, but I am gonna ask him this.

1851
01:31:35.425 --> 01:31:36.485
Why did you say brake failure?

1852
01:31:38.435 --> 01:31:40.455
'cause park runway,

1853
01:31:41.595 --> 01:31:44.785
you're now gonna have damage. Foregone

1854
01:31:44.785 --> 01:31:45.985
Conclusion. Yep. Safety

1855
01:31:45.985 --> 01:31:46.985
Control. Now

1856
01:31:46.985 --> 01:31:49.265
I wanna hear what you're gonna do when you leave

1857
01:31:49.545 --> 01:31:51.855
prepared surface, very end

1858
01:31:58.965 --> 01:32:00.685
gonna eject, et cetera, et cetera.

1859
01:32:01.345 --> 01:32:03.405
But it's a foregone conclusion at that point.

1860
01:32:03.665 --> 01:32:07.325
We have damage, we have, lemme ask this.

1861
01:32:08.345 --> 01:32:11.935
What if you had a hook on the airplane, have a barrier.

1862
01:32:12.035 --> 01:32:13.735
That's right. So you have a brake failure,

1863
01:32:13.995 --> 01:32:16.295
you hook don't, that's correct.

1864

01:32:16.395 --> 01:32:17.815

So there's still things that we can do

1865

01:32:18.235 --> 01:32:19.375

for the case, the hazard.

1866

01:32:20.635 --> 01:32:22.695

And you're gonna tell me what, how you're gonna mitigate.

1867

01:32:24.265 --> 01:32:25.655

We're gonna have a tail and we're gonna have,

1868

01:32:27.565 --> 01:32:31.475

we're gonna be 12,000 foot run point.

1869

01:32:33.535 --> 01:32:36.275

Can we get the mic? Hey, you got,

1870

01:32:36.275 --> 01:32:37.595

your comments are really important, gang.

1871

01:32:37.715 --> 01:32:38.715

I want everybody to hear 'em.

1872

01:32:42.175 --> 01:32:44.915

Did you have a comment or you're just raising your hand? No.

1873

01:32:45.495 --> 01:32:46.715

Did you want to share something? I just

1874

01:32:46.715 --> 01:32:47.755

said depart of the runway

1875

01:32:47.815 --> 01:32:49.595

Is not a hundred percent damaged injury.

1876

01:32:49.815 --> 01:32:51.995

That's not a hundred percent always just

1877

01:32:52.075 --> 01:32:53.595
'cause you depart prepared surface. Yeah,

1878
01:32:53.795 --> 01:32:54.795
Absolutely. Absolutely.

1879
01:32:54.795 --> 01:32:57.715
Can I do that? I don't need that.

1880
01:32:57.935 --> 01:32:58.935
Can you pass it back please?

1881
01:33:02.895 --> 01:33:06.915
For me, the key thing here is if I look at depart the

1882
01:33:07.115 --> 01:33:10.355
prepared surface, there's really no mitigations available.

1883
01:33:11.545 --> 01:33:15.075
Whereas if I, if I put up there a brake failure

1884
01:33:15.225 --> 01:33:17.195
that would lead to runway departure,

1885
01:33:17.305 --> 01:33:20.035
then there's things I can mitigate, whether it's a tail hook

1886
01:33:20.035 --> 01:33:22.235
or resting barriers or whatever else.

1887
01:33:23.015 --> 01:33:26.995
Um, so, so for me it, it's more helpful to try

1888
01:33:26.995 --> 01:33:29.595
and identify some, or,

1889
01:33:29.595 --> 01:33:32.955
or identify what we're talking about as a hazard,

1890
01:33:33.135 --> 01:33:34.995
as something that is mitigatable.

1891

01:33:35.015 --> 01:33:38.275

So like I can nullify it, avoid that whatever

1892

01:33:38.275 --> 01:33:41.555

that is from happening in the first place. Mitigation

1893

01:33:41.775 --> 01:33:42.775

Behind you, please.

1894

01:33:44.215 --> 01:33:45.675

So you can, you can mitigate that

1895

01:33:45.675 --> 01:33:47.715

by having a 500 foot wide one.

1896

01:33:49.015 --> 01:33:50.635

Go Ahead please. It's only 300 feet.

1897

01:33:50.695 --> 01:33:54.155

Anyway, so having sat in on the this, yeah,

1898

01:33:54.155 --> 01:33:56.235

I've been on this SRB, um,

1899

01:33:56.415 --> 01:33:58.115

and these, some

1900

01:33:58.115 --> 01:34:00.195

of the misconceptions involved are

1901

01:34:00.225 --> 01:34:01.635

departing the prepared surface.

1902

01:34:01.815 --> 01:34:05.195

For instance, right now seems like the majority

1903

01:34:05.195 --> 01:34:07.475

of people here, assuming that's departing the runway,

1904

01:34:08.265 --> 01:34:10.395
that was not the case.

1905
01:34:10.585 --> 01:34:12.755
Departing the prepared surface was the

1906
01:34:12.755 --> 01:34:13.875
slick surface they made.

1907
01:34:14.495 --> 01:34:18.235
Now going on to the, onto the act, you know, out the runway,

1908
01:34:18.725 --> 01:34:20.195
slick surface might have only been a hundred

1909
01:34:20.195 --> 01:34:21.315
feet, 50 feet wide.

1910
01:34:21.895 --> 01:34:23.195
The runway is 300 feet wide.

1911
01:34:23.255 --> 01:34:26.755
So there, there was an enormous amount of confusion

1912
01:34:27.775 --> 01:34:30.995
on simple terminology, just like we're having right now.

1913
01:34:31.575 --> 01:34:36.275
And the, the key out of that safety review board was

1914
01:34:36.915 --> 01:34:39.395
ensuring that each of these, you know, ideas

1915
01:34:39.505 --> 01:34:42.155
that people are having, well no, that's this, that each

1916
01:34:42.155 --> 01:34:44.475
of those, whether we call 'em hazards

1917
01:34:44.475 --> 01:34:48.395
or causes, which to be honest, you know,

1918

01:34:48.795 --> 01:34:52.115

I bet we could get at least three completely right answers

1919

01:34:52.115 --> 01:34:56.635

outta this group, but ensuring that we've, we've addressed

1920

01:34:57.265 --> 01:34:58.965

any potential mitigations

1921

01:34:58.965 --> 01:35:01.285

that can be had related to any of those.

1922

01:35:01.345 --> 01:35:02.925

And that was the key. Um,

1923

01:35:03.345 --> 01:35:06.765

and you know, this is like one of the classic examples of,

1924

01:35:07.785 --> 01:35:09.725

of not a really right answer

1925

01:35:09.755 --> 01:35:13.285

because maybe in the context of, you know,

1926

01:35:14.195 --> 01:35:17.165

departing the runway, then break failure is the,

1927

01:35:17.305 --> 01:35:18.645

is the hazard.

1928

01:35:19.265 --> 01:35:23.685

But in, in context of, you know, staying on the runway,

1929

01:35:23.865 --> 01:35:27.405

but leaving the, the slick section, that's not the case.

1930

01:35:27.545 --> 01:35:30.565

So I feel like that's kind of, that was one of those, I mean

1931

01:35:31.655 --> 01:35:35.405
these SRBs tend to be sometimes even multiple days, uh,

1932
01:35:35.405 --> 01:35:37.485
because of arguments like this.

1933
01:35:38.145 --> 01:35:40.005
But when they, when

1934
01:35:40.005 --> 01:35:43.845
that test team ended up doing their IC runway testing, um,

1935
01:35:44.715 --> 01:35:46.525
they finally kind of drilled down and,

1936
01:35:46.865 --> 01:35:49.445
and you know, they kicked off the SRB with a, all right,

1937
01:35:49.555 --> 01:35:51.685
there's gonna be arguments on whether this is a cause

1938
01:35:51.685 --> 01:35:53.685
or, you know, they just stated ahead of time.

1939
01:35:53.925 --> 01:35:56.125
'cause they'd seen that in their, in their review.

1940
01:35:56.185 --> 01:35:58.405
And then they said, all right, regardless of whether

1941
01:35:58.405 --> 01:36:01.165
that's the case, do we have the appropriate mitigations?

1942
01:36:01.165 --> 01:36:03.325
Yeah. And, and that's where, you know,

1943
01:36:03.625 --> 01:36:05.725
we talk about the terminology mattering

1944
01:36:05.785 --> 01:36:07.845
and I, I completely agree it does matter,

1945

01:36:08.425 --> 01:36:11.125
but in the end it doesn't matter.

1946

01:36:11.665 --> 01:36:12.665
So,

1947

01:36:13.985 --> 01:36:17.725
No, that's, um, I wanna echo that and reinforce that.

1948

01:36:18.105 --> 01:36:20.285
And when you, so envision this, you're in your teams,

1949

01:36:20.595 --> 01:36:21.845
there's 10 of you out there,

1950

01:36:21.855 --> 01:36:23.965
we've given you a THA, you've gone through this process.

1951

01:36:25.445 --> 01:36:26.745
Is it really valuable for you

1952

01:36:26.745 --> 01:36:28.585
to spend 20 minutes arguing about which

1953

01:36:28.585 --> 01:36:29.665
one of those is the hazard?

1954

01:36:30.925 --> 01:36:33.425
Or would we rather you tell the full story

1955

01:36:34.285 --> 01:36:35.545
and get the good mitigations?

1956

01:36:36.445 --> 01:36:39.385
So if you get to that roadblock, just keep moving,

1957

01:36:40.045 --> 01:36:41.345
get the mitigation, tell the story.

1958

01:36:42.585 --> 01:36:45.305

I have to agree that, uh, uh, with, with what was said,

1959

01:36:45.445 --> 01:36:48.025

uh, you know, the bottom line is the mitigations in,

1960

01:36:48.125 --> 01:36:51.385

in like, said that that's what, that's what's really going

1961

01:36:51.385 --> 01:36:52.385

to be in the test cards

1962

01:36:52.445 --> 01:36:55.465

or is going to really get down when on the briefing is the

1963

01:36:55.465 --> 01:36:57.425

mitigations, uh, regarded.

1964

01:36:57.425 --> 01:37:00.585

And the, the, the value of this is, is making sure you go

1965

01:37:00.585 --> 01:37:03.905

through the exercise and whether you call it a cause or, or,

1966

01:37:03.965 --> 01:37:08.105

or a hazard that, that you list them and you identify 'em.

1967

01:37:08.105 --> 01:37:10.465

So then you can do mitigations against, uh,

1968

01:37:10.725 --> 01:37:12.425

mainly against the causes, hopefully.

1969

01:37:13.125 --> 01:37:16.185

But, but the bottom line is do you have all the mitigations

1970

01:37:16.185 --> 01:37:17.905

that you need for all those possibilities?

1971

01:37:19.005 --> 01:37:20.305

And when you brief the flight, you,

1972

01:37:20.325 --> 01:37:21.825

you really concentrate on the mitigations.

1973

01:37:21.845 --> 01:37:26.505

And some of the mitigations are common to many of those in,

1974

01:37:26.525 --> 01:37:28.025

in, in, and that, that's part

1975

01:37:28.025 --> 01:37:29.545

of the reason why I combine 'em

1976

01:37:29.545 --> 01:37:32.025

because a lot of the mitigations are, are, are applied

1977

01:37:32.205 --> 01:37:33.985

to many causes.

1978

01:37:34.765 --> 01:37:37.425

Um, but, but the bottom line is the mitigations.

1979

01:37:37.425 --> 01:37:39.625

That's, that's what you really need to, to get to.

1980

01:37:40.885 --> 01:37:42.385

So Rod, when we break out,

1981

01:37:42.565 --> 01:37:47.055

I'm gonna recommend we do one hazard per THA Is

1982

01:37:47.055 --> 01:37:48.295

that is your Okay, good.

1983

01:37:48.755 --> 01:37:51.055

And we can talk about it in the panel, Wade. Yeah,

1984

01:37:51.075 --> 01:37:55.805

So I just wanted to point out that it's better

1985

01:37:55.805 --> 01:37:59.365
to have the 20 minute argument in the S RV than it's in the

1986
01:37:59.365 --> 01:38:01.005
debris or even worse on the airplane.

1987
01:38:01.345 --> 01:38:02.725
So I, I would, yeah,

1988
01:38:03.025 --> 01:38:05.405
it may be frustrating, but I think you're much better.

1989
01:38:05.815 --> 01:38:08.245
Those kind of things talked about as as,

1990
01:38:11.615 --> 01:38:14.125
Right, because You wait until you just say, oh,

1991
01:38:14.125 --> 01:38:15.165
well we all agree on this.

1992
01:38:15.185 --> 01:38:17.245
All good, somebody's not gonna good.

1993
01:38:18.205 --> 01:38:19.205
Absolutely this should be in the,

1994
01:38:19.205 --> 01:38:20.405
the briefing room with your test team.

1995
01:38:20.405 --> 01:38:21.445
Figure it out there, right?

1996
01:38:21.505 --> 01:38:24.525
And then, but just like, you know, my initial story,

1997
01:38:24.695 --> 01:38:26.485
other people are gonna change it and may go up

1998
01:38:26.485 --> 01:38:27.925
or down one, don't be married to it.

1999

01:38:28.295 --> 01:38:29.765

Let's embrace that other knowledge and,

2000

01:38:29.765 --> 01:38:30.765

and be willing to discuss it.

2001

01:38:30.765 --> 01:38:32.485

So absolutely agree Wade. And

2002

01:38:32.885 --> 01:38:36.365

A point that was touched on here, um, is one that we dance

2003

01:38:36.365 --> 01:38:38.525

around a lot and Sodom really articulate,

2004

01:38:38.545 --> 01:38:41.365

but um, when you ask a question, you get the answer

2005

01:38:41.365 --> 01:38:42.605

to the question you really asked.

2006

01:38:42.745 --> 01:38:44.805

Not necessarily the question you thought you asked.

2007

01:38:45.905 --> 01:38:48.085

And that's what he touched on with, uh,

2008

01:38:48.435 --> 01:38:49.645

what is the prepared surface.

2009

01:38:50.285 --> 01:38:52.405

I mean, meant different things to different people

2010

01:38:52.985 --> 01:38:54.165

and you can never be sure that

2011

01:38:54.165 --> 01:38:55.445

what comes outta your mouth is

2012

01:38:55.445 --> 01:38:58.805
what actually meaningfully goes into somebody else's head.

2013
01:38:59.425 --> 01:39:01.965
Uh, I can tell you it can be very humbling

2014
01:39:01.965 --> 01:39:04.365
to watch a student do what you really told 'em to do.

2015
01:39:10.225 --> 01:39:13.085
One more parting shot. Save round. Who wants it?

2016
01:39:15.975 --> 01:39:17.985
Alright, when you come back from lunch,

2017
01:39:18.295 --> 01:39:19.585
I'll do the grand reveal

2018
01:39:19.885 --> 01:39:22.265
and show you what I think the hazard is.

2019
01:39:23.405 --> 01:39:25.185
Um, anything, uh, before we go to lunch

2020
01:39:25.365 --> 01:39:27.265
and uh, so any questions from the team here?

2021
01:39:27.965 --> 01:39:30.505
And if not, I'll turn it. We got one last Yes, I

2022
01:39:31.105 --> 01:39:35.865
Commend the audience, uh, here,

2023
01:39:36.245 --> 01:39:37.905
but, uh, one thing I haven't seen a lot

2024
01:39:37.905 --> 01:39:41.905
of here in the US is the, uh, if you take

2025
01:39:42.495 --> 01:39:45.625
somewhere have a look, it has a slight scale

2026

01:39:45.795 --> 01:39:47.665

where you transition from.

2027

01:39:49.865 --> 01:39:51.605

One of the things I haven't seen a lot here in the US is

2028

01:39:51.605 --> 01:39:52.725

the use of the bow tie method.

2029

01:39:52.945 --> 01:39:54.005

Uh, it's unique in

2030

01:39:54.005 --> 01:39:57.125

that it presents a sliding point at which you define

2031

01:39:57.345 --> 01:39:59.165

the, the event.

2032

01:39:59.635 --> 01:40:04.205

They, they use the term event to try and go away from cause

2033

01:40:04.225 --> 01:40:06.245

and hazard and then you slide it back and forward

2034

01:40:06.785 --> 01:40:08.685

and it gives you the ability to define

2035

01:40:08.905 --> 01:40:12.005

and draw your boundary at the point at which you have

2036

01:40:12.005 --> 01:40:14.285

control, which comes back to this gentleman here in front

2037

01:40:14.285 --> 01:40:15.965

of me who was saying for him, it's all about

2038

01:40:15.965 --> 01:40:17.285

where it can affect most control.

2039

01:40:17.945 --> 01:40:21.085

So it, it's a technique that allows you to change

2040

01:40:21.085 --> 01:40:22.405

that as a variable.

2041

01:40:24.595 --> 01:40:26.085

I've never heard of that. That's good.

2042

01:40:27.095 --> 01:40:28.685

We're gonna break for lunch, we're gonna come back,

2043

01:40:28.815 --> 01:40:30.805

we're gonna have the panel, we're gonna break into

2044

01:40:30.805 --> 01:40:31.925

teams and we're gonna make awesome.

2045

01:40:32.165 --> 01:40:34.965

T ha's, I don't work for Avian anymore,

2046

01:40:35.505 --> 01:40:36.525

but I put this out there.

2047

01:40:36.525 --> 01:40:38.605

They're a great team and they have, uh, good information

2048

01:40:39.225 --> 01:40:43.405

and um, I know, uh, John already talked to me about it,

2049

01:40:43.405 --> 01:40:45.925

but other information's up there if you want more.

2050

01:40:47.085 --> 01:40:48.085

Anything from, uh, Huffer.

2051

01:40:49.305 --> 01:40:49.525

So.