WEBVTT

1
00:00:00.000 --> 00:00:01.820
And I asked Ray, so you've got his bio here again.

2
00:00:01.820 --> 00:00:03.045
And I asked him, Hey, is there anything,

3
00:00:03.165 --> 00:00:05.445
'cause I don't know him, I, I asked there anything specific

4
00:00:05.625 --> 00:00:07.805
you want me to highlight in your bio?

5
00:00:08.225 --> 00:00:10.365
And he said, just tell people that I'm the chief

6
00:00:10.365 --> 00:00:11.365
of safety at Edwards

7
00:00:11.385 --> 00:00:13.245
and I've been doing safety for a long time.

8
00:00:13.865 --> 00:00:15.365
So, okay. So that's, that's it.

9
00:00:15.365 --> 00:00:16.445
I'll leave that as the introduction,

10
00:00:16.445 --> 00:00:17.485
but I do want to say this.

11
00:00:18.065 --> 00:00:21.825
So you see the title of what he's going to talk about.

12
00:00:22.565 --> 00:00:26.395
I will tell you, this is, this is my fifth one

13
00:00:26.395 --> 00:00:27.955
of these as chairman.

14
00:00:28.665 --> 00:00:32.205
Um, it's hard to get people to come present

15
00:00:32.425 --> 00:00:34.405
for a variety of reasons.

16
00:00:35.115 --> 00:00:38.785
It is the most difficult to get people

17
00:00:39.045 --> 00:00:41.745
to come talk about accidents.

18
00:00:42.325 --> 00:00:45.105
So when Ray offered this up, Hey,

19
00:00:45.185 --> 00:00:47.465
I can come talk about an accident that happened.

20
00:00:47.615 --> 00:00:50.265
There's no way we weren't gonna get him on the docket.

21
00:00:50.365 --> 00:00:53.305
So with that said, Mr. Quez podium is yours.

22
00:01:02.535 --> 00:01:03.555
Uh, where's the clicker?

23
00:01:09.105 --> 00:01:09.685
All the sugar.

24
00:01:15.465 --> 00:01:20.305
So, um, first of all, um, this is a sad topic and,

25
00:01:20.405 --> 00:01:23.225
and I apologize for, uh, being the last presenter for this.

26
00:01:23.485 --> 00:01:27.335
Um, but, uh, this does happen in our line of business,

27
00:01:27.335 --> 00:01:28.575

and so we should learn from it.

28
00:01:29.405 --> 00:01:32.925
Um, the ideas presented that you heard about this morning,

29
00:01:33.265 --> 00:01:36.615
um, turbo talked about visual learning.

30
00:01:37.355 --> 00:01:42.235
Um, Roy talked about the, uh, comp plan, uh,

31
00:01:42.755 --> 00:01:43.955
pressure, pressure from programs

32
00:01:43.955 --> 00:01:45.395
and the importance of training.

33
00:01:46.555 --> 00:01:49.055
And then David talked about, uh, the idea

34
00:01:49.075 --> 00:01:51.695
of people being comfortable and speaking up,

35
00:01:52.155 --> 00:01:53.935
and that, uh, everybody on the team

36
00:01:54.455 --> 00:01:55.835
should all be on the same page.

37
00:01:55.845 --> 00:01:59.225
These are all elements that you'll, uh, you'll pick up on

38
00:01:59.285 --> 00:02:01.105
as I brief this, uh, this accident.

39
00:02:03.415 --> 00:02:05.475
Uh, before I begin though, I would just want to emphasize

40
00:02:05.475 --> 00:02:10.195
that all the information from from this briefing are from

41
00:02:10.915 --> 00:02:13.155
publicly available documents, primarily from the

42
00:02:13.875 --> 00:02:15.515
accident investigation board report,

43
00:02:16.035 --> 00:02:18.305
which comes from a legal investigation.

44
00:02:19.685 --> 00:02:22.215
None of the information here are from the, uh,

45
00:02:22.735 --> 00:02:24.015
separate safety investigation,

46
00:02:24.265 --> 00:02:26.135
which is not publicly available.

47
00:02:27.375 --> 00:02:30.275
But as you'll see, there are many safety lessons

48
00:02:30.345 --> 00:02:34.435
that you can derive just from reading the A IB report.

49
00:02:40.855 --> 00:02:42.595
So on uh, September of last year,

50
00:02:43.455 --> 00:02:47.005
we had a civilian test engineer who was fatally injured

51
00:02:47.095 --> 00:02:50.325
after con, uh, walking into the propeller of a,

52
00:02:50.545 --> 00:02:53.405
of an MQ nine A aircraft during a ground test.

53
00:02:54.625 --> 00:02:56.845
Uh, for those of you who, who may be unfamiliar

54
00:02:56.845 --> 00:02:59.615

with the MQ nine Air MQ nine aircraft,

55
00:03:00.435 --> 00:03:02.815
it is a remotely piloted vehicle, uh,

56
00:03:02.825 --> 00:03:06.845
about 36 feet in length with a 66 foot wingspan

57
00:03:07.145 --> 00:03:11.385
and a height of 12 and a half feet has a single engine, uh,

58
00:03:11.385 --> 00:03:14.145
driving a single propeller, uh, attached

59
00:03:14.145 --> 00:03:15.505
to the Aden of the fuse lodge.

60
00:03:15.965 --> 00:03:20.915
So, as we go through the briefing, um, I ask you not

61
00:03:20.915 --> 00:03:22.955
to think about who is to blame for the mishap,

62
00:03:23.755 --> 00:03:25.175
but, uh, think about your test

63
00:03:25.275 --> 00:03:26.935
or test that you are reviewing

64
00:03:26.935 --> 00:03:30.355
or consulting with, uh, on things that you can do to change

65
00:03:30.355 --> 00:03:32.795
that test or reemphasize in your test operations

66
00:03:32.795 --> 00:03:35.035
to improve the safety of that, of that endeavor.

67
00:03:36.185 --> 00:03:39.865
Um, feel free to take notes on what, uh,

68
00:03:40.015 --> 00:03:41.105
what things you can change.

69
00:03:41.285 --> 00:03:43.345
And then, uh, I'll leave some time at the end for you

70
00:03:43.525 --> 00:03:46.265
to be able to share what you've, what you wrote down

71
00:03:46.265 --> 00:03:47.825
for the benefit of the rest of the audience.

72
00:03:51.265 --> 00:03:52.475
This is the order of the brief.

73
00:03:57.285 --> 00:03:59.675
These are the acronyms from the A IV report.

74
00:04:01.555 --> 00:04:04.135
Of note is the casualty, which I'll refer to as

75
00:04:05.575 --> 00:04:08.215
mishap test engineer one or MT one.

76
00:04:12.415 --> 00:04:14.715
So the accident happened in this airfield

77
00:04:15.055 --> 00:04:16.115
out in the Mojave Desert.

78
00:04:16.995 --> 00:04:20.955
Uh, it's, uh, surrounded by farmlands in the desert.

79
00:04:21.915 --> 00:04:25.725
It's a contractor owned, contractor controlled airfield.

80
00:04:26.715 --> 00:04:29.565
There's a small pre Air Force presence in the airfield,

81
00:04:29.575 --> 00:04:31.925

which is a detachment from the

82
00:04:32.465 --> 00:04:34.645
Air Force Lifecycle and Management Center.

83
00:04:35.295 --> 00:04:37.915
Uh, it's identified as detachment three or dead three.

84
00:04:42.375 --> 00:04:45.065
Just for perspective, the general map of the area,

85
00:04:45.445 --> 00:04:48.105
the airfield is located near the low right corner

86
00:04:48.125 --> 00:04:50.425
of this picture near El Mirage.

87
00:04:51.405 --> 00:04:54.985
It is about 30 miles away from Edwards is located

88
00:04:55.005 --> 00:04:59.795
to the north, and also about 30 miles, uh, from Lancaster,

89
00:04:59.795 --> 00:05:01.595
the city of Lancaster, which is the, uh,

90
00:05:01.855 --> 00:05:04.675
the largest city in the valley over to the West.

91
00:05:10.405 --> 00:05:13.945
So before I discuss the test, it's worth discussing how, uh,

92
00:05:14.815 --> 00:05:18.535
operators and test personnel are warned about, uh,

93
00:05:18.955 --> 00:05:21.415
the danger of working when working around a, an,

94
00:05:21.435 --> 00:05:22.855
uh, a spinning propeller.

95
00:05:23.865 --> 00:05:25.885
So the A IB found four ways

96
00:05:25.995 --> 00:05:28.005
that personnel are educated about this.

97
00:05:29.225 --> 00:05:32.205
Uh, the first being the aircraft launch technical order,

98
00:05:32.225 --> 00:05:36.155
or geo, uh, where it describes the proper procedures

99
00:05:36.175 --> 00:05:38.155
for approaching an aircraft.

100
00:05:39.465 --> 00:05:44.205
Second is a, uh, new employee training brief offered

101
00:05:44.225 --> 00:05:46.325
by the, uh, detachment three.

102
00:05:47.225 --> 00:05:49.645
It contains a slide with danger areas regard

103
00:05:49.645 --> 00:05:51.165
regarding radiation zones

104
00:05:51.165 --> 00:05:52.885
and a, uh, propeller no entry zone.

105
00:05:54.445 --> 00:05:59.025
The third is a, uh, con contractor briefing on

106
00:05:59.025 --> 00:06:00.105
the safety and flight line.

107
00:06:00.205 --> 00:06:03.585
Basics, again, has a slide with the danger zones

108
00:06:03.585 --> 00:06:04.945

for radiation in the propeller.

109
00:06:06.255 --> 00:06:09.355
And then the fourth is this general maintenance procedure to

110
00:06:09.565 --> 00:06:13.035
where again, it depicts the area where you shouldn't enter

111
00:06:13.375 --> 00:06:15.155
or, uh, because of the, uh, propeller hazard.

112
00:06:18.765 --> 00:06:20.615
It's interesting to note that the, uh,

113
00:06:20.875 --> 00:06:24.535
propel propeller hazard areas from these three sources

114
00:06:25.285 --> 00:06:27.175
were very different in size and shape,

115
00:06:28.255 --> 00:06:32.875
and that the a IB was only able to confirm that MTE one

116
00:06:33.775 --> 00:06:36.275
saw the dead three slide, which had the smallest,

117
00:06:36.685 --> 00:06:38.405
which depicted the smallest, uh,

118
00:06:38.405 --> 00:06:40.045
hazard area out of the three.

119
00:06:46.595 --> 00:06:49.695
So the system under test was a government owned aircraft.

120
00:06:50.115 --> 00:06:52.015
It was being used for a series of ground

121
00:06:52.075 --> 00:06:54.845
and flight tests due to a new software.

122
00:06:56.565 --> 00:06:59.735
This particular test was an electromagnetic interference,

123
00:06:59.835 --> 00:07:04.275
electromagnetic compatibility ground test where, uh,

124
00:07:04.385 --> 00:07:07.515
telemetry readings were required from the weapons, uh,

125
00:07:07.515 --> 00:07:09.795
that were located on both the left and right wing.

126
00:07:13.305 --> 00:07:15.575
There were, um, several delays that occurred

127
00:07:15.575 --> 00:07:19.265
during the test program, uh, which, uh, delayed this, uh,

128
00:07:19.265 --> 00:07:21.585
completion of this ground test for a few weeks.

129
00:07:22.045 --> 00:07:25.265
So it is, it isn't hard to imagine that there was pressure

130
00:07:25.265 --> 00:07:27.625
to get this test done as soon as possible.

131
00:07:28.585 --> 00:07:29.965
And this was reflected

132
00:07:30.065 --> 00:07:33.165
by various comments from those on the test team obtained

133
00:07:33.185 --> 00:07:34.325
by the, by the board.

134
00:07:40.405 --> 00:07:42.425
The test team was made up of all contractors.

135
00:07:42.845 --> 00:07:45.585

You had, uh, an, the air crew composed of the pilot

136
00:07:45.645 --> 00:07:46.705
and the sensor operator.

137
00:07:47.535 --> 00:07:50.875
And, uh, mm, one is the crew chief,

138
00:07:51.885 --> 00:07:56.325
and all three have, uh, many years of experience on the,

139
00:07:56.345 --> 00:07:59.395
on the MQ nine, the, uh,

140
00:07:59.395 --> 00:08:03.085
test director was the most experienced of the team, uh,

141
00:08:03.085 --> 00:08:05.685
having had 14 years of experience on the MQ nine.

142
00:08:06.605 --> 00:08:09.545
And in 13 of those years was a certified test director.

143
00:08:10.125 --> 00:08:13.005
So literally, this person had hundreds of, uh,

144
00:08:13.015 --> 00:08:15.485
tests done on the MQ nine at that field.

145
00:08:17.855 --> 00:08:20.415
MTE one though was fairly new to the MQ nine.

146
00:08:21.115 --> 00:08:24.175
Um, she, although she's had, uh, uh, other

147
00:08:24.685 --> 00:08:27.015
test experience primarily at Edwards Air Force Base

148
00:08:28.405 --> 00:08:31.385
in her first year at Edwards, she was a a, an intern.

149
00:08:32.405 --> 00:08:34.065
And then for the next six years

150
00:08:34.065 --> 00:08:37.705
after that, she was an instrumentation engineer working on

151
00:08:37.705 --> 00:08:39.145
the F 35 aircraft.

152
00:08:40.705 --> 00:08:44.045
Uh, MTE one was, at the time of this accident,

153
00:08:44.225 --> 00:08:47.645
was being trained to be upgraded to a test director.

154
00:08:48.525 --> 00:08:52.105
And the, uh, mishap test director was her primary trainer.

155
00:08:54.505 --> 00:08:56.245
The rest of the test team were composed

156
00:08:56.245 --> 00:08:59.315
of other aircraft maintainers, test engineers

157
00:08:59.615 --> 00:09:00.795
and weapons maintainers.

158
00:09:00.795 --> 00:09:01.195
Mm-Hmm.

159
00:09:06.245 --> 00:09:09.145
So their, their safety plan identified three

160
00:09:09.255 --> 00:09:10.795
hazards shown here.

161
00:09:12.955 --> 00:09:16.095
And the Safety Review Board assessed the test as low risk.

162
00:09:18.075 --> 00:09:19.205

Note that this, uh,

163
00:09:19.785 --> 00:09:22.925
low risk assessment was the original risk assessment

164
00:09:23.615 --> 00:09:25.715
and did not account for changes to the test

165
00:09:25.715 --> 00:09:27.475
that I will talk about in the next slide.

166
00:09:32.925 --> 00:09:36.165
So the test procedure test procedure called

167
00:09:36.185 --> 00:09:40.785
for a spectrum analyzer to measure the,

168
00:09:40.805 --> 00:09:42.385
the telemetry readings from those weapons.

169
00:09:43.545 --> 00:09:46.345
Normally, the spectrum analyzer would be placed on a table,

170
00:09:46.885 --> 00:09:49.235
um, away from the aircraft,

171
00:09:50.805 --> 00:09:52.755
but for some reason, um,

172
00:09:53.305 --> 00:09:56.755
that spectrum analyzer wasn't available due

173
00:09:56.755 --> 00:09:57.875
to the calibration issue.

174
00:09:59.125 --> 00:10:02.065
So not wanting another delay, test director

175
00:10:02.085 --> 00:10:05.545
and, uh, semi maintainers went to, to the tool crib to, uh,

176
00:10:05.975 --> 00:10:07.425
look for an alternate method.

177
00:10:08.745 --> 00:10:11.525
And so they found this radio frequency power meter. Mm-Hmm.

178
00:10:11.595 --> 00:10:14.565
It's a handheld device that, uh, with a picture shown there.

179
00:10:15.975 --> 00:10:18.465
They found that, and a test director who,

180
00:10:19.715 --> 00:10:23.675
although was unfamiliar with that device, um, er determined

181
00:10:23.675 --> 00:10:26.155
that it would serve the, the need for the test.

182
00:10:28.095 --> 00:10:31.555
So on that night, um, there was some more aircraft issues

183
00:10:31.555 --> 00:10:34.595
that, uh, ultimately resulted in the test being canceled.

184
00:10:36.095 --> 00:10:40.035
Uh, and so since the, uh, test director was, uh, uh,

185
00:10:40.215 --> 00:10:43.035
fairly unfamiliar with the handheld device, he took

186
00:10:43.035 --> 00:10:45.355
that opportunity to take measurements on the aircraft.

187
00:10:45.855 --> 00:10:49.025
He went to the right side of the aircraft, um,

188
00:10:49.175 --> 00:10:50.465
took some readings from the weapons,

189
00:10:51.415 --> 00:10:55.345

and then walked back towards the back of the aircraft

190
00:10:55.345 --> 00:10:58.785
around the propeller and to the left side of the aircraft,

191
00:10:58.805 --> 00:11:00.185
and took some readings there as well.

192
00:11:01.175 --> 00:11:02.755
And he did that multiple times.

193
00:11:04.935 --> 00:11:08.395
All the while, um, the MTE one was observing this

194
00:11:09.055 --> 00:11:10.385
because she was told

195
00:11:10.385 --> 00:11:13.745
that she would be the one performing this task

196
00:11:15.045 --> 00:11:16.465
for the test the following night.

197
00:11:21.225 --> 00:11:24.375
There was some, uh, witnesses, uh, observing this, uh,

198
00:11:25.075 --> 00:11:26.455
uh, this practice.

199
00:11:27.235 --> 00:11:29.695
And so, uh, one of 'em, uh, testified

200
00:11:29.695 --> 00:11:32.815
that they heard the discussion that, uh,

201
00:11:33.525 --> 00:11:37.135
this device had to be placed about six to 12 inches

202
00:11:37.135 --> 00:11:39.175
behind the weapon in order to collect the data.

203
00:11:41.435 --> 00:11:42.965
This was contradictory to

204
00:11:42.995 --> 00:11:45.605
what the test director later testified.

205
00:11:46.565 --> 00:11:50.265
Um, when he said that he instructed MTE one

206
00:11:50.605 --> 00:11:53.965
to take the readings at the wingtips were in front

207
00:11:53.965 --> 00:11:55.045
of the weapon stations.

208
00:11:56.635 --> 00:11:58.975
And oh, by the way, he, he also mentioned that, uh,

209
00:11:58.995 --> 00:12:02.505
he instructed the, uh, engineer to check in

210
00:12:02.505 --> 00:12:04.585
with the crew chief prior to approaching the aircraft.

211
00:12:10.785 --> 00:12:12.645
So on the day of the accident, uh,

212
00:12:13.485 --> 00:12:17.275
there's a configuration log that was, uh, used

213
00:12:17.275 --> 00:12:20.275
to document the change in the use of the

214
00:12:20.975 --> 00:12:23.175
handheld power meter instead of this, instead

215
00:12:23.175 --> 00:12:24.335
of the spectrum analyzer.

216
00:12:25.325 --> 00:12:28.305

But the test safety plan was not reevaluated

217
00:12:28.325 --> 00:12:30.905
for any new risk due to this procedure change.

218
00:12:33.965 --> 00:12:36.385
So in the afternoon, uh, the testing gathered again

219
00:12:36.385 --> 00:12:38.815
for their pre-test mission brief, um,

220
00:12:40.115 --> 00:12:43.575
and the A IB, uh, noted that

221
00:12:44.735 --> 00:12:49.535
there was a, there were some items

222
00:12:49.765 --> 00:12:53.335
that were, uh, listed in their operating instruction on

223
00:12:54.095 --> 00:12:55.705
what were required to be briefed.

224
00:12:56.495 --> 00:12:58.975
Um, but they noted that, uh,

225
00:13:01.125 --> 00:13:04.345
that a lot of these items were not briefed at,

226
00:13:04.405 --> 00:13:05.625
uh, during this day.

227
00:13:06.505 --> 00:13:09.565
So some of them were that, uh, there was no roll call taken

228
00:13:09.565 --> 00:13:12.235
during the brief, although the vast majority

229
00:13:12.235 --> 00:13:13.835
of the participants did attend the brief.

230
00:13:15.145 --> 00:13:17.125
Uh, there was no discussion of assigned roles.

231
00:13:17.755 --> 00:13:21.985
So it wasn't brief that MTE one was, was, uh,

232
00:13:22.935 --> 00:13:25.145
will need to approach the aircraft during the test.

233
00:13:26.475 --> 00:13:28.905
There was no discussion on the communications plan,

234
00:13:29.475 --> 00:13:30.825
which meant no one

235
00:13:30.825 --> 00:13:34.585
besides the test director, MTE one,

236
00:13:36.295 --> 00:13:39.395
and another test engineer identified as MTE two.

237
00:13:39.935 --> 00:13:42.115
So no one besides those three knew that the only way

238
00:13:42.115 --> 00:13:46.005
to communicate with MTE one was

239
00:13:46.005 --> 00:13:48.365
through text messaging on her personal cell phone.

240
00:13:50.365 --> 00:13:53.625
Uh, there was no brief of the aircraft keep out zones

241
00:13:53.625 --> 00:13:54.745
as required by the to,

242
00:13:56.005 --> 00:13:58.985
and there was no brief of any kind of a knock it off raise.

243
00:14:02.405 --> 00:14:04.665

So after the, uh, the pre-test mission brief,

244
00:14:05.125 --> 00:14:07.985
the test engineers gathered the ground control station.

245
00:14:08.985 --> 00:14:13.525
And again, MT one, who was also unfamiliar with the device

246
00:14:14.245 --> 00:14:18.095
discussed this, uh, device with her, with her trainer,

247
00:14:18.555 --> 00:14:19.735
the test director.

248
00:14:20.895 --> 00:14:23.635
And basically the test director told MT one,

249
00:14:23.635 --> 00:14:26.855
you're gonna do the same thing from yesterday.

250
00:14:30.225 --> 00:14:34.485
So, um, the test director directed MTE one to proceed

251
00:14:34.485 --> 00:14:37.845
to the aircraft for the first half of the test to observe

252
00:14:37.945 --> 00:14:42.645
for any unusual controlled surface or turret movements.

253
00:14:43.405 --> 00:14:47.745
Um, MTE two testified that he thought this was odd

254
00:14:47.745 --> 00:14:50.985
because normally all test engineers were in the ground

255
00:14:51.005 --> 00:14:52.965
control station and never at the aircraft.

256
00:14:56.495 --> 00:14:58.915
So engines was started around 4:50 PM

257
00:14:58.975 --> 00:15:00.755
and they did about an hour's worth of testing

258
00:15:00.895 --> 00:15:01.995
before they called it.

259
00:15:02.095 --> 00:15:04.755
Uh, they called for a lunch break.

260
00:15:04.755 --> 00:15:06.995
They basically completed the first half of their test.

261
00:15:07.455 --> 00:15:08.635
Uh, it was hot

262
00:15:09.095 --> 00:15:10.475
and all the temperatures were rising,

263
00:15:10.535 --> 00:15:12.155
so it was a good time to, to take a break.

264
00:15:19.195 --> 00:15:20.215
So after the te

265
00:15:20.225 --> 00:15:23.335
after the lunch break, they, uh, reassembled at 7:00 PM

266
00:15:24.765 --> 00:15:27.865
and then engine was started at around 7:36 PM

267
00:15:28.085 --> 00:15:30.305
around the time of evening civil twilight,

268
00:15:37.135 --> 00:15:40.315
uh, 7:51 PM the test director sends that text

269
00:15:40.335 --> 00:15:43.755
to MTE one indicating that it's time for her to go

270
00:15:43.755 --> 00:15:45.755

to the aircraft and take the readings.

271
00:15:46.955 --> 00:15:48.085
Shortly after that,

272
00:15:48.485 --> 00:15:51.365
MTE two leaves the ground control station just

273
00:15:51.365 --> 00:15:54.405
to check up on MTE one asked her if she was good to go

274
00:15:54.625 --> 00:15:55.725
and just, she said, yep.

275
00:15:57.025 --> 00:16:00.125
So MT one replies back to the test director saying,

276
00:16:00.125 --> 00:16:02.365
I'm walking through the aircraft right now, uh,

277
00:16:02.765 --> 00:16:07.085
which MTE two confirmed by sending that text that, that, uh,

278
00:16:07.435 --> 00:16:10.125
confirmed that she was putting on her hearing protection

279
00:16:10.545 --> 00:16:11.605
and grabbing the meter.

280
00:16:13.805 --> 00:16:15.695
Yeah, it took a little over a minute for her

281
00:16:15.695 --> 00:16:17.455
to walk from the ground control station to

282
00:16:17.455 --> 00:16:19.495
where the aircraft parking spot was at,

283
00:16:21.105 --> 00:16:24.725
and she proceeded directly to the aircraft without stopping

284
00:16:24.785 --> 00:16:26.165
to check in with the crew chief.

285
00:16:27.255 --> 00:16:29.675
And, uh, no one, including the crew chief,

286
00:16:29.985 --> 00:16:31.395
stopped her at this point.

287
00:16:34.485 --> 00:16:36.785
As MTE one reached the aircraft,

288
00:16:37.915 --> 00:16:40.335
the crew chief radios the ground control station

289
00:16:40.475 --> 00:16:43.935
to ask if the KU link was on, presumably

290
00:16:43.935 --> 00:16:46.295
because he was concerned about the radiation hazard.

291
00:16:47.615 --> 00:16:51.155
Um, and the sensor operator replies with the affirmative.

292
00:16:58.955 --> 00:17:01.855
So there were some witnesses who, uh, were there also

293
00:17:01.855 --> 00:17:04.375
during the previous night that was the present at the, uh,

294
00:17:05.155 --> 00:17:07.575
at the aircraft during this, this night as well.

295
00:17:08.325 --> 00:17:11.265
And they said that they saw her basically do the same thing

296
00:17:11.265 --> 00:17:14.095
from the night before, which meant she went

297
00:17:14.095 --> 00:17:16.775

to the right side of the aircraft behind the weapon,

298
00:17:17.795 --> 00:17:21.585
took the readings, and then when she turned

299
00:17:21.645 --> 00:17:24.105
and started walking towards the rear of the aircraft,

300
00:17:24.965 --> 00:17:26.815
that was probably when others started waving

301
00:17:26.875 --> 00:17:28.775
and shouting to try to get her attention.

302
00:17:30.205 --> 00:17:31.305
But she was heads down

303
00:17:31.445 --> 00:17:33.745
and appeared to be pressing buttons on the device.

304
00:17:34.125 --> 00:17:37.455
And as confirmed by the A IB

305
00:17:37.455 --> 00:17:40.615
during a post-event demonstration, you can't hear anything

306
00:17:40.615 --> 00:17:42.575
besides engine noise in that location.

307
00:17:45.525 --> 00:17:49.895
So based on the engine readings, it was only seven seconds

308
00:17:50.065 --> 00:17:51.695
after reaching the aircraft

309
00:17:52.245 --> 00:17:54.615
that MTE one was struck by the propeller.

310
00:17:57.015 --> 00:17:58.235
As this was unfolding,

311
00:17:58.455 --> 00:18:00.755
the crew chief was yelling on the radio, kill,

312
00:18:00.785 --> 00:18:01.795
kill, kill, kill.

313
00:18:03.545 --> 00:18:07.365
And, uh, which meant that he was, uh, trying to get the, uh,

314
00:18:07.365 --> 00:18:09.205
the air crew to shut off the engine.

315
00:18:09.935 --> 00:18:11.465
However, as,

316
00:18:11.735 --> 00:18:14.585
because they were just talking about the KU link a few

317
00:18:14.585 --> 00:18:17.185
seconds ago, the air crew thought they,

318
00:18:17.405 --> 00:18:19.105
he was talking about the KU link.

319
00:18:19.125 --> 00:18:21.785
So they shut off the KU link, but not the engine.

320
00:18:23.055 --> 00:18:24.995
It was only 17 sec seconds

321
00:18:24.995 --> 00:18:29.605
after the strike that the air crew finally realized that

322
00:18:30.165 --> 00:18:31.865
the crew chief may have been talking about

323
00:18:31.865 --> 00:18:33.025
killing the engine instead.

324
00:18:33.025 --> 00:18:33.385

Mm-Hmm.

325
00:18:39.225 --> 00:18:41.605
So this was, these are the series of events.

326
00:18:41.615 --> 00:18:45.325
After the, after the strike, immediately there was a couple

327
00:18:45.325 --> 00:18:46.405
of 9 1 1 calls.

328
00:18:47.485 --> 00:18:51.065
Uh, there was an emergency response team located on the

329
00:18:51.065 --> 00:18:54.095
airfield that came to, came to the scene,

330
00:18:54.475 --> 00:18:59.065
and, uh, started, uh, uh, helping the MTE one.

331
00:19:00.675 --> 00:19:02.865
About 25, about 20 minutes later,

332
00:19:03.125 --> 00:19:05.505
the local para paramedics arrived on scene

333
00:19:06.445 --> 00:19:08.535
with some additional medical equipment.

334
00:19:09.795 --> 00:19:12.455
The medevac helicopter arrived on scene about 13 minutes

335
00:19:12.465 --> 00:19:15.665
later, and finally about an hour

336
00:19:16.115 --> 00:19:19.665
after the event, the MTE one was

337
00:19:20.425 --> 00:19:22.025
helicoptered out of the, uh,

338
00:19:22.225 --> 00:19:27.185
airfield towards the hospital in Lancaster life.

339
00:19:27.215 --> 00:19:30.185
Save lifesaving resuscitation began in the helicopter

340
00:19:30.285 --> 00:19:34.145
and continued, um, after when they arrived at the hospital

341
00:19:34.845 --> 00:19:36.825
and, uh, but to no avails,

342
00:19:37.045 --> 00:19:40.435
and she was, uh, pronounced deceased, uh,

343
00:19:40.635 --> 00:19:42.435
a little over an hour after the event.

344
00:19:49.335 --> 00:19:53.395
The A IB wanted a, uh, replication of the environment

345
00:19:53.945 --> 00:19:57.315
that was present that night in order to, uh, help understand

346
00:19:57.985 --> 00:20:00.195
what could have contributed to her fatal mistake.

347
00:20:00.655 --> 00:20:04.395
So, one, the left there is one of the two stadium lights

348
00:20:04.395 --> 00:20:05.835
that were around the aircraft.

349
00:20:06.845 --> 00:20:08.825
The aircraft is there on the right side.

350
00:20:09.155 --> 00:20:12.315
We're looking aft, we're looking at the aft side

351
00:20:12.315 --> 00:20:15.195

of the aircraft from, from the right side.

352
00:20:19.055 --> 00:20:22.585
This picture is taken from in front of the wing looking aft

353
00:20:23.485 --> 00:20:25.335
and, uh, as you,

354
00:20:25.335 --> 00:20:27.335
hopefully you can tell you can't see the spinning

355
00:20:27.335 --> 00:20:28.655
propeller in these conditions.

356
00:20:34.535 --> 00:20:38.735
So the DOD uh, maintains a list of human factors

357
00:20:40.185 --> 00:20:43.915
that can play a role in aircraft mishaps to help, uh,

358
00:20:44.575 --> 00:20:46.715
a's identify potential areas of assessment.

359
00:20:48.335 --> 00:20:51.825
This particular A IB I've identified 14 factors.

360
00:20:52.205 --> 00:20:53.665
The first seven are shown here,

361
00:20:54.315 --> 00:20:55.415
and I'll just, uh, pause

362
00:20:55.415 --> 00:20:56.615
here for a bit for you guys to read.

363
00:21:08.515 --> 00:21:09.495
Here's the next seven.

364
00:21:29.415 --> 00:21:31.235
So that was the, uh, that's the end

365
00:21:31.235 --> 00:21:32.275
of the report presentation.

366
00:21:32.695 --> 00:21:36.615
Um, if you guys have any thoughts on

367
00:21:36.615 --> 00:21:40.615
how you can improve your test program, um, if you'd like

368
00:21:40.615 --> 00:21:41.815
to share, please do so.

369
00:21:41.835 --> 00:21:43.895
And hopefully it'll benefit others in the audience.

370
00:21:53.825 --> 00:21:56.405
So here are some areas that I think, uh, you know,

371
00:21:56.425 --> 00:21:58.565
you should take a look at in your organization

372
00:21:59.495 --> 00:22:02.195
to see if there's something there that you can change

373
00:22:02.635 --> 00:22:06.985
or re-emphasize within your test operations to make,

374
00:22:07.045 --> 00:22:10.205
uh, to keep it safer.

375
00:22:16.395 --> 00:22:18.575
So if you want more detail, these are the links

376
00:22:18.575 --> 00:22:20.575
to the actual a IB report

377
00:22:21.035 --> 00:22:23.095
and also a news release regarding the incident.

378
00:22:24.275 --> 00:22:27.355

And, um, with that, I thank you for your attention.

379
00:22:27.385 --> 00:22:29.195
We'd be glad to answer any questions.

380
00:22:43.045 --> 00:22:44.125
I am Joel Baden from Bell.

381
00:22:44.265 --> 00:22:48.245
Um, I have read this accident, uh, the a IB report,

382
00:22:48.245 --> 00:22:49.445
at least that's on the, on the web.

383
00:22:50.435 --> 00:22:52.695
And, uh, one thing I noticed is, you know,

384
00:22:52.695 --> 00:22:54.925
comparative experience levels.

385
00:22:55.185 --> 00:22:57.885
You had a test director who was an instructor, had been

386
00:22:57.885 --> 00:23:00.165
for 14 years, pretty significant with that company.

387
00:23:00.605 --> 00:23:02.935
Someone who was not necessarily inexperienced,

388
00:23:02.995 --> 00:23:05.735
but didn't have time at Journal Atomics

389
00:23:05.735 --> 00:23:06.975
or with the, with the debt.

390
00:23:07.645 --> 00:23:09.625
Um, and so it was undergoing, uh, training.

391
00:23:09.845 --> 00:23:13.345
So there's a definitely a experienced deficit there.

392
00:23:13.675 --> 00:23:16.145
We've got a very experienced person giving instructions that

393
00:23:16.665 --> 00:23:19.045
on reflection, of course, look open-ended, right?

394
00:23:19.175 --> 00:23:22.235
Why didn't they explain to go, uh, watch out

395
00:23:22.235 --> 00:23:23.875
for the tail rot, or, I'm sorry, tail rotor.

396
00:23:23.875 --> 00:23:25.515
I work in helicopters, the, the propeller.

397
00:23:25.935 --> 00:23:29.635
And, uh, so I, I worry about, you know,

398
00:23:29.635 --> 00:23:32.155
we talk about crew resource management, having a voice

399
00:23:32.155 --> 00:23:33.755
of the table speaking up when you

400
00:23:33.755 --> 00:23:34.795
see something that isn't right.

401
00:23:35.475 --> 00:23:38.095
And I noticed that, that this kind of reeks of that in a lot

402
00:23:38.095 --> 00:23:39.895
of cases, you had a last minute change.

403
00:23:40.575 --> 00:23:43.145
A lot of people trying to audible the play,

404
00:23:43.145 --> 00:23:44.545
figure out how are we gonna get it done?

405
00:23:44.705 --> 00:23:47.045

I think a lot of us have been there trying to do our best

406
00:23:47.045 --> 00:23:48.845
to do that, but no one stepped back

407
00:23:48.845 --> 00:23:51.205
and said, Hey, we just changed the rules of the game

408
00:23:51.745 --> 00:23:52.765
by changing our equipment.

409
00:23:52.845 --> 00:23:55.005
I think that was pretty evident in the a IB report.

410
00:23:55.585 --> 00:23:59.535
But I also see, um, potential, uh, what I would like

411
00:23:59.535 --> 00:24:01.135
to discuss more with anyone, honestly.

412
00:24:01.675 --> 00:24:03.335
Um, there's that experience deficit,

413
00:24:03.475 --> 00:24:05.455
but there's also other social norms

414
00:24:05.455 --> 00:24:06.895
that might keep us from speaking up.

415
00:24:07.295 --> 00:24:09.755
Example, a female in a group of males, right?

416
00:24:10.425 --> 00:24:12.805
Is that affecting our ability to speak up?

417
00:24:12.825 --> 00:24:14.245
Is that affecting anyone's ability

418
00:24:14.305 --> 00:24:15.605
to speak up for those other people?

419
00:24:16.595 --> 00:24:18.215
So those are things i I concern with.

420
00:24:18.275 --> 00:24:20.855
Um, I know that's not really a question, but, um,

421
00:24:20.915 --> 00:24:23.095
and also i, I worry a little too about the,

422
00:24:23.635 --> 00:24:26.215
the normalization of deviation that we see.

423
00:24:26.475 --> 00:24:28.575
Uh, the crew chief obviously was very experienced

424
00:24:29.525 --> 00:24:31.945
and allowed that person to walk by.

425
00:24:31.965 --> 00:24:34.145
You know, we always joke if you, if you don't want anyone

426
00:24:34.145 --> 00:24:35.265
to question you, hold a clipboard

427
00:24:35.265 --> 00:24:36.345
and look like you know what you're doing,

428
00:24:36.805 --> 00:24:38.465
and no one's gonna ask you what's going on.

429
00:24:38.565 --> 00:24:40.065
But that's one of those things that's like,

430
00:24:40.365 --> 00:24:41.945
if you're walking into my danger zone,

431
00:24:42.245 --> 00:24:43.985
tackle first ask questions next.

432
00:24:44.475 --> 00:24:46.135

And in cases where you've got a tail rotor,

433
00:24:46.135 --> 00:24:48.095
and in cases where you've got a propeller that's turning

434
00:24:48.945 --> 00:24:51.795
that can I, I really think that can be the only solution.

435
00:24:52.325 --> 00:24:55.305
And so, so seeing, seeing those things are obvious in the,

436
00:24:55.305 --> 00:24:57.265
in the, in the Monday morning quarterback, the after play.

437
00:24:57.765 --> 00:25:01.065
Um, but I'm just curious what, you know,

438
00:25:01.065 --> 00:25:03.105
what the group thinks on, on how we address those

439
00:25:03.105 --> 00:25:04.425
before the next accident happens.

440
00:25:05.855 --> 00:25:07.435
Oh, thank you for the inputs.

441
00:25:15.995 --> 00:25:18.685
I've seen it with, uh, some, uh, some operations

442
00:25:18.685 --> 00:25:20.605
where you have a, um, a chain

443
00:25:20.625 --> 00:25:23.085
or a rope tied to you, so you can't go to,

444
00:25:23.115 --> 00:25:24.565
into the danger zone physically.

445
00:25:25.555 --> 00:25:28.225
Isn't this something that would've been considered

446
00:25:28.565 --> 00:25:31.545
or part of the operation that should be considered?

447
00:25:33.355 --> 00:25:36.335
So that's a, that's a question for each organization

448
00:25:36.335 --> 00:25:39.295
to answer if, if that's a, a viable method

449
00:25:39.395 --> 00:25:40.975
for, for your ops.

450
00:25:41.805 --> 00:25:44.955
Um, for me, so not, this is not the a IB anymore,

451
00:25:44.955 --> 00:25:46.035
this is just me personally.

452
00:25:46.415 --> 00:25:48.745
Um, people should have spoken up,

453
00:25:48.745 --> 00:25:49.905
people should have stopped her,

454
00:25:50.325 --> 00:25:52.265
and the crew chief should have stopped her.

455
00:25:52.895 --> 00:25:57.535
Um, the, um,

456
00:25:58.295 --> 00:26:00.655
MTE two that I mentioned a couple times during the brief,

457
00:26:01.155 --> 00:26:04.465
um, he was feeling there's something odd here.

458
00:26:04.605 --> 00:26:07.465
You know, one is, you know, he's, she's being sent out

459
00:26:07.465 --> 00:26:08.705

to observe the aircraft when

460
00:26:08.725 --> 00:26:10.145
that's not the normal procedure.

461
00:26:10.805 --> 00:26:15.205
And two is, you know, uh, the fact that she's getting close

462
00:26:15.205 --> 00:26:17.125
to the aircraft, which they normally don't do,

463
00:26:17.545 --> 00:26:19.005
you know, somebody should have spoke up.

464
00:26:40.495 --> 00:26:41.495
So,

465
00:26:44.665 --> 00:26:49.565
So, uh, for, uh, several years of my career, I was a, um,

466
00:26:50.065 --> 00:26:54.745
flight test lead for p threes, uh, which for anybody

467
00:26:54.805 --> 00:26:56.425
who knows Navy aircraft, there's a lot

468
00:26:56.425 --> 00:26:57.465
of propellers on those.

469
00:26:57.485 --> 00:27:00.345
And we used to talk about the blades of death all the time,

470
00:27:01.295 --> 00:27:02.595
and they keep out zones.

471
00:27:03.365 --> 00:27:06.305
And it occurred to me while I was listening to this

472
00:27:06.855 --> 00:27:10.105
that we tend to think of unmanned vehicles

473
00:27:10.205 --> 00:27:11.745
as being more like toys.

474
00:27:12.995 --> 00:27:15.015
And we forget that they're aircraft

475
00:27:15.515 --> 00:27:19.815
and we need to treat them the same way that we treat,

476
00:27:20.685 --> 00:27:25.145
um, manned aircraft and identifying those hazards.

477
00:27:25.865 --> 00:27:28.085
And I was surprised when you started

478
00:27:28.655 --> 00:27:32.445
discussing not only the, the lack of safety risk for,

479
00:27:32.505 --> 00:27:33.605
for the blades of death,

480
00:27:33.745 --> 00:27:37.645
but also that there were no communication provisions,

481
00:27:38.145 --> 00:27:42.745
you know, no calm lines, uh, long wires for the crew chief

482
00:27:42.765 --> 00:27:45.105
and for everyone else, anybody walk working

483
00:27:45.105 --> 00:27:47.745
around the aircraft while it was operating.

484
00:27:48.285 --> 00:27:52.575
And, and I wonder how much of a contributing factor, uh,

485
00:27:52.925 --> 00:27:55.255
that was because it was an unmanned vehicle,

486
00:27:55.955 --> 00:27:59.455

and so we were treating it generally differently than we

487
00:27:59.455 --> 00:28:03.575
would, you know, I, um, I, the, the last 17 years

488
00:28:03.575 --> 00:28:08.175
of my career, I've been doing navy systems and, and, uh, um,

489
00:28:09.305 --> 00:28:11.325
and, uh, carrier landing systems.

490
00:28:11.545 --> 00:28:13.325
No one's on a flight deck without having

491
00:28:13.715 --> 00:28:17.875
some way to communicate. So, yeah,

492
00:28:18.295 --> 00:28:22.525
So, um, that attitude, you know, of, of, uh,

493
00:28:23.745 --> 00:28:25.685
not having the proper communications plan.

494
00:28:26.605 --> 00:28:28.185
You know, think about this, this is

495
00:28:29.275 --> 00:28:32.915
an E-M-I-E-M-C ground test, you know, as, as, um,

496
00:28:33.635 --> 00:28:34.835
probably a lot of you have experienced,

497
00:28:35.235 --> 00:28:36.765
that is a pretty boring test.

498
00:28:37.085 --> 00:28:41.025
Normally, um, it's considered low risk,

499
00:28:41.205 --> 00:28:43.025
so maybe their guards were down, right?

500
00:28:43.415 --> 00:28:45.465
When you, when you're involved in a high risk test,

501
00:28:45.935 --> 00:28:48.625
everybody's, you know, antennas are up.

502
00:28:49.225 --> 00:28:51.485
But this is a, a low risk ground test.

503
00:28:51.835 --> 00:28:54.285
They've been trying to do this, um, multiple times

504
00:28:54.285 --> 00:28:55.325
during the past few weeks.

505
00:28:56.015 --> 00:28:59.505
Um, maintainers are probably just wanting to get the things,

506
00:28:59.845 --> 00:29:02.305
the, the test done so they can bed the aircraft down

507
00:29:02.305 --> 00:29:03.505
that night and go home.

508
00:29:04.045 --> 00:29:06.185
So all these things, you know,

509
00:29:06.185 --> 00:29:08.345
could have played a part in, in this accident.

510
00:29:12.415 --> 00:29:13.195
You go right into the

511
00:29:20.665 --> 00:29:25.635
Dave, while they're doing that, you can go ahead

512
00:29:25.635 --> 00:29:27.705
and answer question that's coming into the mic now.

513
00:29:28.455 --> 00:29:30.375

Sure. Uh, just one quick, I couldn't remember in the list

514
00:29:30.375 --> 00:29:32.935
of 14 items if terminology was one of 'em.

515
00:29:33.115 --> 00:29:35.815
Um, but that definitely stood out to me, uh, you know,

516
00:29:35.815 --> 00:29:38.215
as it's something in our company that we're trying

517
00:29:38.215 --> 00:29:40.615
to be very specific and, and train and practice to,

518
00:29:40.995 --> 00:29:42.935
and hold each other accountable to those words such

519
00:29:42.935 --> 00:29:44.175
as the kill, kill, kill,

520
00:29:44.175 --> 00:29:45.735
and knowing exactly what that meant.

521
00:29:45.735 --> 00:29:49.885
Correct. But I forget, was that on there or part of it?

522
00:29:49.885 --> 00:29:51.085
Um, I'm not sure actually. Okay.

523
00:29:51.085 --> 00:29:53.185
But yeah, that's, but something to point out that,

524
00:29:53.185 --> 00:29:57.735
that I know is, uh, that we know within this room

525
00:29:57.735 --> 00:30:00.335
and the organization, that words mean things

526
00:30:00.475 --> 00:30:02.855
and practicing that, uh,

527
00:30:02.855 --> 00:30:04.295
in your immediate actions is important.

528
00:30:04.635 --> 00:30:05.055
Thanks.