



1  
00:03:36,780 --> 00:03:42,040  
foreign

2  
00:03:42,050 --> 00:03:46,970  
[Applause]

3  
00:03:51,710 --> 00:03:49,190  
hello and thank you for joining NASA's

4  
00:03:53,750 --> 00:03:51,720  
day of remembrance Town Hall I'm NASA

5  
00:03:55,729 --> 00:03:53,760  
press secretary Jackie McGinnis and we

6  
00:03:58,990 --> 00:03:55,739  
are joined today by administrator Bill

7  
00:04:02,210 --> 00:03:59,000  
Nelson Deputy Administrator Pam melroy

8  
00:04:04,789 --> 00:04:02,220  
associate administrator Bob Cabana to

9  
00:04:07,369 --> 00:04:04,799  
reflect share best practices and answer

10  
00:04:09,289 --> 00:04:07,379  
your questions about safety across NASA

11  
00:04:11,570 --> 00:04:09,299  
centers and Mission directorates

12  
00:04:13,789 --> 00:04:11,580  
before we begin our discussion in a

13  
00:04:15,729 --> 00:04:13,799

spirit of reverence please Focus your

14

00:04:18,590 --> 00:04:15,739

attention on the cruise of Apollo 1

15

00:04:27,070 --> 00:04:18,600

Challenger and Colombia in this five

16

00:04:33,290 --> 00:04:29,330

every January

17

00:04:37,670 --> 00:04:33,300

we at Nasa have a day of remembrance

18

00:04:40,310 --> 00:04:37,680

to encourage reflection throughout NASA

19

00:04:41,689 --> 00:04:40,320

throughout our country throughout indeed

20

00:04:45,050 --> 00:04:41,699

the world

21

00:04:48,110 --> 00:04:45,060

today to pause to remember

22

00:04:50,749 --> 00:04:48,120

and to uplift the legacies of the NASA

23

00:04:55,050 --> 00:04:50,759

family members who gave their lives to

24

00:05:03,110 --> 00:04:59,210

[Music]

25

00:05:03,120 --> 00:05:07,189

then Challenger

26

00:05:12,710 --> 00:05:09,710

then Colombia

27

00:05:16,610 --> 00:05:12,720

and the many other astronauts that died

28

00:05:22,969 --> 00:05:19,550

we will never forget these astronauts

29

00:05:26,930 --> 00:05:22,979

nor all those who have lost their lives

30

00:05:30,409 --> 00:05:26,940

in the pursuit of discovery

31

00:05:32,810 --> 00:05:30,419

and so on this day of remembrance

32

00:05:36,529 --> 00:05:32,820

we honor

33

00:05:42,230 --> 00:05:36,539

and try to better understand

34

00:05:45,409 --> 00:05:42,240

our place in this huge huge universe

35

00:05:48,590 --> 00:05:45,419

and our attempts at Discovery and

36

00:05:52,129 --> 00:05:48,600

exploration in it

37

00:05:55,430 --> 00:05:52,139

these astronauts all achieve the once

38

00:05:59,470 --> 00:05:55,440

Impossible Dream to soar

39

00:06:01,909 --> 00:05:59,480

in the cosmos and to explore the heavens

40

00:06:05,330 --> 00:06:01,919

[Music]

41

00:06:10,129 --> 00:06:05,340

and their families have suffered

42

00:06:16,490 --> 00:06:13,370

every day at NASA we have an opportunity

43

00:06:19,070 --> 00:06:16,500

we have a responsibility

44

00:06:23,390 --> 00:06:19,080

to carry forth their memories and by

45

00:06:26,809 --> 00:06:23,400

taking the next giant leap

46

00:06:31,969 --> 00:06:26,819

you want to keep alive your Legacies

47

00:06:38,629 --> 00:06:31,979

by meeting every challenge hit on

48

00:06:45,409 --> 00:06:42,590

as we push the edge of the envelope

49

00:06:46,909 --> 00:06:45,419

of human achievement in this new era of

50

00:06:50,090 --> 00:06:46,919

exploration

51  
00:06:52,610 --> 00:06:50,100  
we must always continue to embrace the

52  
00:06:53,990 --> 00:06:52,620  
core value of safety it's an

53  
00:06:57,890 --> 00:06:54,000  
institutional

54  
00:07:02,590 --> 00:06:57,900  
and it's an individual responsibility

55  
00:07:06,290 --> 00:07:02,600  
this is and always will be as we reflect

56  
00:07:09,710 --> 00:07:06,300  
a very solemn day on the sacrifice that

57  
00:07:10,510 --> 00:07:09,720  
was made by a bunch of very

58  
00:07:15,650 --> 00:07:10,520  
very

59  
00:07:22,610 --> 00:07:19,550  
it's also a day of remembrance

60  
00:07:25,730 --> 00:07:22,620  
of extreme gratitude

61  
00:07:29,210 --> 00:07:25,740  
we are thankful that NASA's Fallen

62  
00:07:33,650 --> 00:07:29,220  
adventurers shared their lives with us

63  
00:07:36,770 --> 00:07:33,660

they made life on this Earth better

64

00:07:40,730 --> 00:07:36,780

and today and every day we at Nasa are

65

00:07:43,909 --> 00:07:40,740

still United in that shared Pursuit

66

00:07:46,010 --> 00:07:43,919

of exploration and Discovery and may we

67

00:07:49,309 --> 00:07:46,020

carry their spirit

68

00:07:58,390 --> 00:07:49,319

and those of all who have given their

69

00:08:05,629 --> 00:08:02,510

may we carry their spirit with us

70

00:08:08,089 --> 00:08:05,639

as we venture out

71

00:08:10,850 --> 00:08:08,099

to the Moon

72

00:08:13,160 --> 00:08:10,860

to Mars

73

00:08:57,850 --> 00:08:13,170

and Beyond

74

00:08:57,860 --> 00:09:14,810

thank you

75

00:09:18,530 --> 00:09:16,850

now please welcome administrator Bill

76

00:09:21,330 --> 00:09:18,540

Nelson

77

00:09:24,769 --> 00:09:21,340

foreign

78

00:09:27,829 --> 00:09:24,779

[Applause]

79

00:09:31,490 --> 00:09:27,839

we're doing this in the town hall format

80

00:09:33,590 --> 00:09:31,500

because we want to engage you in

81

00:09:36,850 --> 00:09:33,600

conversation

82

00:09:41,050 --> 00:09:36,860

and we take this very serious

83

00:09:44,090 --> 00:09:41,060

after the losses that we have had

84

00:09:46,070 --> 00:09:44,100

this day of remembrance

85

00:09:49,790 --> 00:09:46,080

and it's interesting that they all

86

00:09:53,750 --> 00:09:49,800

happened about this time of year

87

00:09:55,670 --> 00:09:53,760

each tragedy Apollo 1 Challenger and

88

00:09:59,329 --> 00:09:55,680

then Colombia

89

00:10:02,329 --> 00:09:59,339

each disaster left a gaping hole in the

90

00:10:04,190 --> 00:10:02,339

hearts of the NASA family and many of us

91

00:10:08,269 --> 00:10:04,200

feel those

92

00:10:08,279 --> 00:10:11,570

in my case

93

00:10:20,690 --> 00:10:16,070

the 24th Flight of the Space Shuttle

94

00:10:26,990 --> 00:10:25,070

at first attempts in December

95

00:10:28,790 --> 00:10:27,000

when we were scrubbed for a different

96

00:10:32,389 --> 00:10:28,800

reason

97

00:10:35,030 --> 00:10:32,399

it ended up being 41 degrees that

98

00:10:35,040 --> 00:10:39,050

we didn't think anything about that

99

00:10:46,670 --> 00:10:43,130

on through three more scrubs a total of

100

00:10:50,990 --> 00:10:46,680

four of which if we had launched and we

101  
00:10:51,829 --> 00:10:51,000  
had gotten down to T minus 13 in the

102  
00:10:55,670 --> 00:10:51,839  
count

103  
00:10:57,650 --> 00:10:55,680  
another morning T-minus 31

104  
00:10:59,810 --> 00:10:57,660  
any one of which would have been a bad

105  
00:11:07,490 --> 00:10:59,820  
day

106  
00:11:11,269 --> 00:11:07,500  
Flawless mission

107  
00:11:13,190 --> 00:11:11,279  
and to return to Earth on January the

108  
00:11:15,530 --> 00:11:13,200  
18th

109  
00:11:18,889 --> 00:11:15,540  
hoot Gibson's crew

110  
00:11:21,710 --> 00:11:18,899  
Charlie Bolden Pilate

111  
00:11:26,810 --> 00:11:21,720  
and ten days later Challenger launches

112  
00:11:32,930 --> 00:11:30,350  
it so happened the night before the

113  
00:11:35,930 --> 00:11:32,940

Challenger launched

114

00:11:37,389 --> 00:11:35,940

the temperature had gotten down to 25

115

00:11:41,210 --> 00:11:37,399

degrees

116

00:11:45,170 --> 00:11:41,220

there were icicles hanging on the launch

117

00:11:49,370 --> 00:11:48,110

and there were people that had serious

118

00:11:52,370 --> 00:11:49,380

doubts

119

00:11:55,790 --> 00:11:52,380

about launching

120

00:11:59,810 --> 00:11:55,800

but I'll tell you who had the doubts

121

00:12:02,509 --> 00:11:59,820

where the engineers out in Utah who were

122

00:12:06,050 --> 00:12:02,519

begging their management at Morton tide

123

00:12:10,430 --> 00:12:06,060

call to stop the count

124

00:12:17,389 --> 00:12:13,569

and the cold weather stiffening

125

00:12:18,949 --> 00:12:17,399

rubberized gaskets called O-rings in the

126  
00:12:23,810 --> 00:12:18,959  
field joints

127  
00:12:31,670 --> 00:12:27,530  
I asked those Engineers later I said how

128  
00:12:35,150 --> 00:12:31,680  
were you sensitized to that and and then

129  
00:12:37,130 --> 00:12:35,160  
when almost a month earlier when on our

130  
00:12:41,870 --> 00:12:37,140  
first launch attempt it was 41 degrees

131  
00:12:45,949 --> 00:12:41,880  
Challenger was 36 degrees at launch time

132  
00:12:49,009 --> 00:12:45,959  
how was it that you were not sensitized

133  
00:12:51,230 --> 00:12:49,019  
to our first launch attempt on the 24th

134  
00:12:55,910 --> 00:12:53,090  
and they told me

135  
00:12:58,190 --> 00:12:55,920  
they said it was when we got back your

136  
00:13:00,530 --> 00:12:58,200  
solid rocket boosters when you'd

137  
00:13:05,509 --> 00:13:00,540  
launched on the fifth try

138  
00:13:08,150 --> 00:13:05,519

and it was a relatively warm 56 degrees

139

00:13:11,629 --> 00:13:08,160

and we saw Blow by

140

00:13:13,730 --> 00:13:11,639

the blow-by of the hot gases in the

141

00:13:15,410 --> 00:13:13,740

field joints

142

00:13:19,129 --> 00:13:15,420

and

143

00:13:22,310 --> 00:13:19,139

he said then we remembered that

144

00:13:31,310 --> 00:13:22,320

the previous January that had happened

145

00:13:38,810 --> 00:13:34,670

and the management would not listen to

146

00:13:42,230 --> 00:13:38,820

the engineers begging them to stop the

147

00:13:42,240 --> 00:13:47,810

and that went up all the way to the top

148

00:13:53,329 --> 00:13:49,790

as a matter of fact

149

00:13:55,310 --> 00:13:53,339

the NASA administrator wasn't allowed to

150

00:13:57,710 --> 00:13:55,320

be at the cape

151  
00:14:00,650 --> 00:13:57,720  
because he had been indicted for

152  
00:14:03,350 --> 00:14:00,660  
something that was 10 years before and

153  
00:14:07,129 --> 00:14:03,360  
he knew he could clear himself

154  
00:14:10,509 --> 00:14:07,139  
so he was in his office

155  
00:14:13,629 --> 00:14:10,519  
in Washington in the headquarters

156  
00:14:17,150 --> 00:14:13,639  
watching the count

157  
00:14:18,910 --> 00:14:17,160  
and seeing the icicles on the launch

158  
00:14:23,269 --> 00:14:18,920  
Tower

159  
00:14:26,389 --> 00:14:23,279  
and he's calling the cape begging them

160  
00:14:29,389 --> 00:14:26,399  
to stop the count

161  
00:14:33,829 --> 00:14:29,399  
and they won't take his call

162  
00:14:39,949 --> 00:14:33,839  
because he's not the administrator

163  
00:14:45,949 --> 00:14:42,050

just one other personal

164

00:14:50,210 --> 00:14:47,090

of course

165

00:14:52,910 --> 00:14:50,220

I think the world of Hoot Gibson and

166

00:14:56,689 --> 00:14:52,920

Charlie Bolden

167

00:14:59,990 --> 00:14:56,699

and I remember years later hoot telling

168

00:15:02,990 --> 00:15:00,000

me on subsequent missions that he would

169

00:15:06,290 --> 00:15:03,000

get out and inspect the Orbiter

170

00:15:08,990 --> 00:15:06,300

after his flight and he'd look at the

171

00:15:11,569 --> 00:15:09,000

underside or the sides

172

00:15:13,790 --> 00:15:11,579

of the Orbiter with those delicate

173

00:15:15,889 --> 00:15:13,800

silicon tiles

174

00:15:20,810 --> 00:15:15,899

and he said it was like somebody had

175

00:15:28,610 --> 00:15:23,269

a warning

176

00:15:31,189 --> 00:15:28,620

about what was to come in 2003.

177

00:15:33,350 --> 00:15:31,199

in February

178

00:15:35,689 --> 00:15:33,360

and that was

179

00:15:38,269 --> 00:15:35,699

foam coming off

180

00:15:40,850 --> 00:15:38,279

the external tank and it just so

181

00:15:43,910 --> 00:15:40,860

happened to hit at the right place

182

00:15:45,350 --> 00:15:43,920

on asset as the shuttle

183

00:15:47,389 --> 00:15:45,360

I think

184

00:15:51,470 --> 00:15:47,399

accelerated

185

00:15:54,050 --> 00:15:51,480

it hit the Leaning Edge on that carbon

186

00:15:57,670 --> 00:15:54,060

carbon fiber and knocked a hole in the

187

00:16:02,810 --> 00:16:00,170

our deputy and our associate

188

00:16:08,269 --> 00:16:06,170

they have seen all of this first time

189

00:16:11,150 --> 00:16:08,279

firsthand

190

00:16:14,810 --> 00:16:11,160

and they're going to explain

191

00:16:17,750 --> 00:16:14,820

their own personal experiences

192

00:16:20,930 --> 00:16:17,760

but the bottom line on all this is every

193

00:16:24,590 --> 00:16:20,940

day at Nasa we have an opportunity we

194

00:16:27,110 --> 00:16:24,600

have a duty to carry the memories of

195

00:16:30,769 --> 00:16:27,120

those that we lost and carry their

196

00:16:33,530 --> 00:16:30,779

dreams onward and upward and these are

197

00:16:34,910 --> 00:16:33,540

the enduring lessons from each of these

198

00:16:38,090 --> 00:16:34,920

tragedies

199

00:16:40,490 --> 00:16:38,100

and the bottom line is this

200

00:16:43,249 --> 00:16:40,500

speak up

201  
00:16:45,769 --> 00:16:43,259  
a question even a simple question is

202  
00:16:47,629 --> 00:16:45,779  
more forgivable than a mistake that can

203  
00:16:50,150 --> 00:16:47,639  
result in a tragedy

204  
00:16:53,509 --> 00:16:50,160  
and each of us has a responsibility to

205  
00:16:55,670 --> 00:16:53,519  
cultivate a work environment where every

206  
00:16:58,310 --> 00:16:55,680  
member of the NASA family feels

207  
00:17:01,210 --> 00:16:58,320  
empowered to voice doubt

208  
00:17:04,730 --> 00:17:01,220  
make your concerns heard

209  
00:17:07,309 --> 00:17:04,740  
communicate openly

210  
00:17:08,390 --> 00:17:07,319  
we saw the power of speaking up and

211  
00:17:11,210 --> 00:17:08,400  
listening

212  
00:17:14,390 --> 00:17:11,220  
we saw it just recently

213  
00:17:17,449 --> 00:17:14,400

at the successful launch of Artemis one

214

00:17:20,929 --> 00:17:17,459

because while they were loading the

215

00:17:23,090 --> 00:17:20,939

liquid cryogenic propellants into this

216

00:17:26,929 --> 00:17:23,100

powerful rocket

217

00:17:29,090 --> 00:17:26,939

teams encountered a small leak on a

218

00:17:30,890 --> 00:17:29,100

hydrogen valve inside the mobile

219

00:17:33,350 --> 00:17:30,900

launcher

220

00:17:35,770 --> 00:17:33,360

and although the engineers attempted to

221

00:17:38,870 --> 00:17:35,780

remotely troubleshoot the issue

222

00:17:41,630 --> 00:17:38,880

managers ultimately decided that they

223

00:17:43,190 --> 00:17:41,640

needed a red team

224

00:17:44,390 --> 00:17:43,200

so

225

00:17:48,110 --> 00:17:44,400

three

226

00:17:50,390 --> 00:17:48,120

Chad Garrett Billy Carnes and Trent

227

00:17:54,230 --> 00:17:50,400

Annis made the trip out to the launch

228

00:17:56,870 --> 00:17:54,240

pad this is a fully loaded

229

00:18:00,049 --> 00:17:56,880

rocket

230

00:18:03,470 --> 00:18:00,059

they entered that danger zone They

231

00:18:05,930 --> 00:18:03,480

entered as that mobile launcher

232

00:18:09,110 --> 00:18:05,940

at its zero deck

233

00:18:11,450 --> 00:18:09,120

and Trent tighten the bolts

234

00:18:13,250 --> 00:18:11,460

at the leaky valve while Billy

235

00:18:14,990 --> 00:18:13,260

communicated with the launch Team and

236

00:18:17,390 --> 00:18:15,000

the red team

237

00:18:19,909 --> 00:18:17,400

it worked

238

00:18:21,289 --> 00:18:19,919

and the red team not only demonstrated

239

00:18:24,529 --> 00:18:21,299

heroism

240

00:18:28,370 --> 00:18:24,539

and professionalism that day

241

00:18:31,310 --> 00:18:28,380

and it helped us

242

00:18:34,130 --> 00:18:31,320

to do it safely

243

00:18:36,710 --> 00:18:34,140

and then we could go on and complete the

244

00:18:44,690 --> 00:18:40,789

and what they did also reminds us of how

245

00:18:48,110 --> 00:18:44,700

critical each team member is in the

246

00:18:49,789 --> 00:18:48,120

integrity and the safety of every NASA

247

00:18:51,770 --> 00:18:49,799

mission

248

00:18:54,710 --> 00:18:51,780

and that's an example of what happens

249

00:18:59,570 --> 00:18:54,720

when we speak up and we listen

250

00:19:03,289 --> 00:18:59,580

safety is our responsibility

251  
00:19:07,610 --> 00:19:03,299  
so as I said earlier

252  
00:19:10,909 --> 00:19:07,620  
with our leadership here to discuss more

253  
00:19:13,909 --> 00:19:10,919  
about the importance of safety and to

254  
00:19:17,830 --> 00:19:13,919  
honor this day of remembrance I want to

255  
00:19:21,289 --> 00:19:17,840  
introduce my colleague our co-leader

256  
00:19:28,310 --> 00:19:21,299  
Deputy Administrator Pam Elroy

257  
00:19:32,930 --> 00:19:31,190  
thank you so much Bill

258  
00:19:35,990 --> 00:19:32,940  
uh

259  
00:19:40,310 --> 00:19:36,000  
I have to say that while I love honoring

260  
00:19:43,490 --> 00:19:40,320  
the crews this can be a hard day

261  
00:19:45,950 --> 00:19:43,500  
and I get so much comfort from Bill and

262  
00:19:49,850 --> 00:19:45,960  
from Bob because you've been through

263  
00:19:54,650 --> 00:19:52,250

it's so important that we focus the

264

00:19:57,169 --> 00:19:54,660

whole week and in fact the whole year

265

00:19:58,970 --> 00:19:57,179

and every day on remembering our fallen

266

00:20:00,350 --> 00:19:58,980

colleagues while also celebrating their

267

00:20:02,210 --> 00:20:00,360

legacy

268

00:20:04,250 --> 00:20:02,220

as I said it won't just be this week

269

00:20:06,169 --> 00:20:04,260

we've talked about this for a while

270

00:20:07,130 --> 00:20:06,179

coming up on the 20th anniversary of

271

00:20:08,810 --> 00:20:07,140

Columbia

272

00:20:10,730 --> 00:20:08,820

we plan to keep the dialogue going

273

00:20:12,529 --> 00:20:10,740

through safety workshops and discussions

274

00:20:17,390 --> 00:20:12,539

at several of the centers and to make

275

00:20:22,810 --> 00:20:17,400

sure that this dialogue continues to be

276

00:20:26,510 --> 00:20:22,820

very inclusive but also real vital

277

00:20:28,610 --> 00:20:26,520

informative uh and and just the whole

278

00:20:30,710 --> 00:20:28,620

goal of talking about this and keeping

279

00:20:33,650 --> 00:20:30,720

these Lessons Learned alive

280

00:20:36,650 --> 00:20:33,660

there are so many Lessons Learned From

281

00:20:39,529 --> 00:20:36,660

Apollo 1 to Challenger to Colombia we

282

00:20:41,270 --> 00:20:39,539

work with such complicated systems and

283

00:20:43,370 --> 00:20:41,280

we're building them to do things that no

284

00:20:45,710 --> 00:20:43,380

one has ever done before and when I look

285

00:20:47,270 --> 00:20:45,720

at the complexity especially of what we

286

00:20:50,630 --> 00:20:47,280

are doing in our human space flight

287

00:20:51,950 --> 00:20:50,640

program we continue to be at The Cutting

288

00:20:53,810 --> 00:20:51,960

Edge

289

00:20:55,070 --> 00:20:53,820  
so we all know when we're trying

290

00:20:57,710 --> 00:20:55,080  
something new we're never going to be

291

00:21:00,470 --> 00:20:57,720  
100 safe because there are things that

292

00:21:03,409 --> 00:21:00,480  
we can't predict that might happen

293

00:21:05,570 --> 00:21:03,419  
but each of us should remember that it

294

00:21:07,370 --> 00:21:05,580  
could happen to us

295

00:21:08,930 --> 00:21:07,380  
so that's one of the messages that I

296

00:21:10,390 --> 00:21:08,940  
want to give and I'll tell a short story

297

00:21:15,230 --> 00:21:10,400  
about that

298

00:21:18,230 --> 00:21:15,240  
I was a a cape Crusader helped strap

299

00:21:20,169 --> 00:21:18,240  
Cruise in and unstrap Crews as my first

300

00:21:23,029 --> 00:21:20,179  
technical assignment working at the cape

301  
00:21:24,830 --> 00:21:23,039  
and one of the things that was so

302  
00:21:27,130 --> 00:21:24,840  
wonderful was to work with people who'd

303  
00:21:31,070 --> 00:21:27,140  
been trained by the famous Gunter went

304  
00:21:33,590 --> 00:21:31,080  
who was really the you know

305  
00:21:35,810 --> 00:21:33,600  
the grandfather of all of our procedures

306  
00:21:39,110 --> 00:21:35,820  
for safety out at the pad

307  
00:21:42,289 --> 00:21:39,120  
and they had had experiences with Apollo

308  
00:21:44,990 --> 00:21:42,299  
1 that immediately changed and affected

309  
00:21:48,169 --> 00:21:45,000  
not just the way we operated uh out at

310  
00:21:50,570 --> 00:21:48,179  
the pad but uh also the hardware that we

311  
00:21:53,270 --> 00:21:50,580  
use the accessibility of it and then of

312  
00:21:55,010 --> 00:21:53,280  
course to pass those lessons on and I

313  
00:21:56,990 --> 00:21:55,020

have to say that I listened eagerly to

314

00:21:59,390 --> 00:21:57,000

all of those things and I was proud of

315

00:22:01,549 --> 00:21:59,400

the procedures that we did at the time

316

00:22:03,409 --> 00:22:01,559

because I was like Wow we've really made

317

00:22:06,950 --> 00:22:03,419

this safe

318

00:22:08,930 --> 00:22:06,960

uh I came back from my second flight and

319

00:22:12,890 --> 00:22:08,940

I was asked to lead the cape Crusader

320

00:22:15,169 --> 00:22:12,900

team so I was in Florida to get my

321

00:22:18,289 --> 00:22:15,179

familiarization training for unstrapping

322

00:22:20,690 --> 00:22:18,299

the crew of sts-107

323

00:22:23,630 --> 00:22:20,700

and I was out at the runway with Bob

324

00:22:29,090 --> 00:22:25,850

and the crew didn't land on time

325

00:22:30,950 --> 00:22:29,100

we all stared out looking as he did for

326

00:22:33,289 --> 00:22:30,960

the shuttle listening for the sound of

327

00:22:34,789 --> 00:22:33,299

the distinctive double boom and we

328

00:22:35,870 --> 00:22:34,799

didn't hear it and the time came and

329

00:22:39,710 --> 00:22:35,880

went

330

00:22:41,750 --> 00:22:39,720

now as a person trained in physics I

331

00:22:43,010 --> 00:22:41,760

understood perfectly well

332

00:22:45,409 --> 00:22:43,020

that

333

00:22:47,149 --> 00:22:45,419

this just can't happen when you come

334

00:22:49,130 --> 00:22:47,159

back at those speeds from space you're

335

00:22:52,430 --> 00:22:49,140

gonna land when they say you're going to

336

00:22:53,450 --> 00:22:52,440

land within a second and that's just how

337

00:22:55,730 --> 00:22:53,460

it is

338

00:22:57,590 --> 00:22:55,740

uh but I couldn't fathom it I just

339

00:23:01,130 --> 00:22:57,600

simply couldn't fathom it and the only

340

00:23:04,250 --> 00:23:01,140

person standing uh around there at the

341

00:23:07,250 --> 00:23:04,260

runway as we all looked at each other

342

00:23:09,049 --> 00:23:07,260

Bob knew Cabana knew before the rest of

343

00:23:10,610 --> 00:23:09,059

us and it's because he'd been through it

344

00:23:13,730 --> 00:23:10,620

with Challenger

345

00:23:15,649 --> 00:23:13,740

he was the first to say to all of us

346

00:23:17,330 --> 00:23:15,659

they're not coming home

347

00:23:20,990 --> 00:23:17,340

and

348

00:23:23,330 --> 00:23:21,000

I just realized that in my head I had

349

00:23:24,890 --> 00:23:23,340

gotten into a place where this was

350

00:23:26,750 --> 00:23:24,900

something that had happened before and

351

00:23:28,549 --> 00:23:26,760

that we'd fixed everything and it was

352

00:23:31,370 --> 00:23:28,559

going well

353

00:23:34,850 --> 00:23:31,380

you know we need to know it can happen

354

00:23:37,549 --> 00:23:34,860

to us we can make a decision or not

355

00:23:40,250 --> 00:23:37,559

share a concern that could contribute to

356

00:23:42,649 --> 00:23:40,260

an accident and every one of us every

357

00:23:44,810 --> 00:23:42,659

day is on the line to ensure the safety

358

00:23:46,909 --> 00:23:44,820

of the agency

359

00:23:49,909 --> 00:23:46,919

I just want to remind everyone that the

360

00:23:52,130 --> 00:23:49,919

responsibility is on all of us and it

361

00:23:54,110 --> 00:23:52,140

can happen to you

362

00:23:55,610 --> 00:23:54,120

whether you're in that hard place and

363

00:23:58,010 --> 00:23:55,620

you know it at the time you're making

364

00:24:00,409 --> 00:23:58,020

the decision or not

365

00:24:02,810 --> 00:24:00,419

Wayne Hale our former space shuttle

366

00:24:05,930 --> 00:24:02,820

program manager has said just because

367

00:24:08,510 --> 00:24:05,940

you're younger or smarter or read

368

00:24:10,370 --> 00:24:08,520

history lessons or for me listen to

369

00:24:13,190 --> 00:24:10,380

really smart people who learn from

370

00:24:15,950 --> 00:24:13,200

Apollo 1 don't think that you won't make

371

00:24:17,570 --> 00:24:15,960

mistakes and especially that events

372

00:24:19,789 --> 00:24:17,580

can't get away from you

373

00:24:22,370 --> 00:24:19,799

nobody is smart enough to avoid all

374

00:24:24,529 --> 00:24:22,380

problems and that sliver of fear the

375

00:24:26,390 --> 00:24:24,539

knowledge that the universe is out there

376

00:24:29,810 --> 00:24:26,400

waiting for the least lapse in attention

377

00:24:32,930 --> 00:24:29,820

to bite is motivation that just might

378

00:24:34,430 --> 00:24:32,940

help you avoid catastrophe

379

00:24:36,590 --> 00:24:34,440

so having a little bit of a

380

00:24:38,930 --> 00:24:36,600

preoccupation with risk and failure if

381

00:24:40,610 --> 00:24:38,940

you will can lead to high reliability

382

00:24:42,350 --> 00:24:40,620

organizations

383

00:24:45,190 --> 00:24:42,360

I think it's critically important in

384

00:24:47,750 --> 00:24:45,200

everything we do in program management

385

00:24:50,510 --> 00:24:47,760

in the way we do our business every day

386

00:24:52,310 --> 00:24:50,520

to always be thinking about risk and not

387

00:24:53,750 --> 00:24:52,320

just as a yeah I get it that could

388

00:24:55,970 --> 00:24:53,760

happen I'm going to put it to the side

389

00:24:59,330 --> 00:24:55,980

but what am I actually actively doing

390

00:25:02,630 --> 00:24:59,340

about protecting for that

391

00:25:04,070 --> 00:25:02,640

so after each tragic accident we've

392

00:25:06,049 --> 00:25:04,080

managed to not only discover the

393

00:25:09,350 --> 00:25:06,059

technical problems that led to them but

394

00:25:11,330 --> 00:25:09,360

also to work very actively to nurture

395

00:25:14,029 --> 00:25:11,340

and encourage a culture where speaking

396

00:25:16,310 --> 00:25:14,039

up is encouraged and really I think

397

00:25:19,130 --> 00:25:16,320

that's very important to Bill and Bob

398

00:25:20,810 --> 00:25:19,140

and I and the administrator have talked

399

00:25:22,669 --> 00:25:20,820

about speaking up

400

00:25:25,430 --> 00:25:22,679

we need to make sure that dissenting

401  
00:25:27,350 --> 00:25:25,440  
opinions are heard and that questions

402  
00:25:29,450 --> 00:25:27,360  
aren't insulting

403  
00:25:31,130 --> 00:25:29,460  
there's a living connection to the vital

404  
00:25:33,769 --> 00:25:31,140  
importance of safety that crosses

405  
00:25:35,810 --> 00:25:33,779  
Generations as older people transition

406  
00:25:37,909 --> 00:25:35,820  
out of the workforce and newer members

407  
00:25:40,430 --> 00:25:37,919  
of the NASA family may not have

408  
00:25:43,250 --> 00:25:40,440  
experienced a tragedy and are now on the

409  
00:25:45,350 --> 00:25:43,260  
front lines and making launch decisions

410  
00:25:48,350 --> 00:25:45,360  
I want to encourage any of you who are

411  
00:25:52,130 --> 00:25:48,360  
not here when Colombia happened to seek

412  
00:25:54,169 --> 00:25:52,140  
out someone who was and asked him to

413  
00:25:56,690 --> 00:25:54,179

tell their story how it affected them

414

00:25:59,750 --> 00:25:56,700

and how it affected the agency

415

00:26:02,090 --> 00:25:59,760

that acute awareness of why we must

416

00:26:04,730 --> 00:26:02,100

always focus on safety and not pressure

417

00:26:06,529 --> 00:26:04,740

to launch why we must be rigorous as

418

00:26:09,470 --> 00:26:06,539

teams to make sure we're not applying

419

00:26:11,570 --> 00:26:09,480

groupthink to a complex issue

420

00:26:13,909 --> 00:26:11,580

and so many other tools that we have now

421

00:26:16,370 --> 00:26:13,919

for making our astronauts and in fact

422

00:26:17,870 --> 00:26:16,380

our whole Workforce safe they're

423

00:26:20,149 --> 00:26:17,880

critical

424

00:26:22,010 --> 00:26:20,159

so I trust that everyone will be taking

425

00:26:24,769 --> 00:26:22,020

the Columbia case study training in

426

00:26:26,930 --> 00:26:24,779

Saturn very soon so many of us still

427

00:26:29,810 --> 00:26:26,940

here at Nasa knew these folks personally

428

00:26:31,549 --> 00:26:29,820

and this year marking 20 years since

429

00:26:33,409 --> 00:26:31,559

they've been gone

430

00:26:35,750 --> 00:26:33,419

hey let's face it this is a hard topic

431

00:26:39,769 --> 00:26:35,760

for all of us but I want to reiterate

432

00:26:42,110 --> 00:26:39,779

again it could happen to you to us and

433

00:26:44,630 --> 00:26:42,120

we have to do our utmost to ensure that

434

00:26:47,930 --> 00:26:44,640

if it does happen to us we have the

435

00:26:49,730 --> 00:26:47,940

potential to change the course of events

436

00:26:51,649 --> 00:26:49,740

the tools we've been developing to

437

00:26:54,890 --> 00:26:51,659

ensure a thriving safety culture in the

438

00:26:57,289 --> 00:26:54,900

backbone of support from your teams are

439

00:26:59,149 --> 00:26:57,299

benchmarks that we rely on to extend the

440

00:27:03,110 --> 00:26:59,159

reach of Science and human exploration

441

00:27:07,330 --> 00:27:03,120

out into the solar system and beyond

442

00:27:09,769 --> 00:27:07,340

what we do is so hard and so worthwhile

443

00:27:13,130 --> 00:27:09,779

and each team members knowledge

444

00:27:15,350 --> 00:27:13,140

intuition and compassion are essential

445

00:27:19,549 --> 00:27:15,360

so thank you for everything you do every

446

00:27:22,370 --> 00:27:19,559

day for our Grand Mission and to honor

447

00:27:24,649 --> 00:27:22,380

the memories of our fallen comrades

448

00:27:26,570 --> 00:27:24,659

now let me hand it over to my dear

449

00:27:28,250 --> 00:27:26,580

friend our associate administrator Bob

450

00:27:34,909 --> 00:27:28,260

Cabana

451

00:27:37,370 --> 00:27:34,919

[Applause]

452

00:27:40,070 --> 00:27:37,380

thank you all so much for joining us

453

00:27:42,710 --> 00:27:40,080

today uh for those of you that know me

454

00:27:45,049 --> 00:27:42,720

this is a topic very dear to my heart

455

00:27:49,370 --> 00:27:45,059

it's very important to me safety after

456

00:27:51,470 --> 00:27:49,380

all is our top core value and I all I

457

00:27:53,090 --> 00:27:51,480

can say is you know the administrator

458

00:27:55,909 --> 00:27:53,100

talked about the importance of speaking

459

00:27:57,890 --> 00:27:55,919

up Pam talked about how it can happen to

460

00:28:01,250 --> 00:27:57,900

us and it's really important that we

461

00:28:04,250 --> 00:28:01,260

keep our Focus as we go into this new

462

00:28:06,049 --> 00:28:04,260

year and we take stock of what we are

463

00:28:08,590 --> 00:28:06,059

doing to ensure that we're doing things

464

00:28:11,510 --> 00:28:08,600

uh safely

465

00:28:15,289 --> 00:28:11,520

I want to put things in perspective for

466

00:28:19,310 --> 00:28:15,299

me when I first got to NASA back in uh

467

00:28:21,049 --> 00:28:19,320

July June of 1985. you know we were

468

00:28:24,230 --> 00:28:21,059

flying the shuttle things were looking

469

00:28:26,630 --> 00:28:24,240

great and I'd been at Nasa about seven

470

00:28:28,669 --> 00:28:26,640

months when we lost a challenger I was

471

00:28:30,529 --> 00:28:28,679

in a single systems trainer learning

472

00:28:32,750 --> 00:28:30,539

about the ohms RCS system and they came

473

00:28:36,289 --> 00:28:32,760

and interrupted our session they said

474

00:28:38,570 --> 00:28:36,299

we lost the Challenger and I was in

475

00:28:41,570 --> 00:28:38,580

there with another astronaut we said you

476  
00:28:43,310 --> 00:28:41,580  
know the crew's okay they got out well

477  
00:28:47,510 --> 00:28:43,320  
there's no way they can get out you know

478  
00:28:49,370 --> 00:28:47,520  
we it they weren't okay okay and I I it

479  
00:28:51,169 --> 00:28:49,380  
was hard to accept that we had actually

480  
00:28:54,110 --> 00:28:51,179  
lost a vehicle now then I thought about

481  
00:28:57,950 --> 00:28:54,120  
it a little bit and I just come from uh

482  
00:29:00,649 --> 00:28:57,960  
production River as a test pilot and

483  
00:29:03,289 --> 00:29:00,659  
we'd lost three crew while I was there

484  
00:29:05,510 --> 00:29:03,299  
three fatalities and I looked at what we

485  
00:29:07,909 --> 00:29:05,520  
were doing in space is well this is part

486  
00:29:10,490 --> 00:29:07,919  
of the business that we're in okay this

487  
00:29:12,590 --> 00:29:10,500  
this is going to happen and and that was

488  
00:29:14,330 --> 00:29:12,600

my perspective as a young astronaut

489

00:29:16,190 --> 00:29:14,340

candidate having just come from the

490

00:29:18,950 --> 00:29:16,200

Naval Air test center but

491

00:29:20,870 --> 00:29:18,960

that's not the case all right it was

492

00:29:23,810 --> 00:29:20,880

totally preventable you've heard that

493

00:29:25,970 --> 00:29:23,820

people needed to speak up people needed

494

00:29:27,769 --> 00:29:25,980

to listen people needed to act it could

495

00:29:31,190 --> 00:29:27,779

have been prevented

496

00:29:34,789 --> 00:29:31,200

now how did my perspective on all of

497

00:29:39,110 --> 00:29:37,130

I was a chief the astronaut office for

498

00:29:42,789 --> 00:29:39,120

three years and I rode out to the pad

499

00:29:45,830 --> 00:29:42,799

with every crew and I want to tell you

500

00:29:48,409 --> 00:29:45,840

flying in space is a lot easier than

501  
00:29:51,289 --> 00:29:48,419  
asking somebody else to take that risk

502  
00:29:53,029 --> 00:29:51,299  
and I saw all those Crews off and I was

503  
00:29:54,789 --> 00:29:53,039  
on the runway to see them all home

504  
00:29:57,409 --> 00:29:54,799  
safely

505  
00:30:01,070 --> 00:29:57,419  
I went off and had other jobs between

506  
00:30:03,950 --> 00:30:01,080  
that and I was assigned as the Director

507  
00:30:06,669 --> 00:30:03,960  
of flight corporations in Houston

508  
00:30:10,250 --> 00:30:06,679  
in Colombia

509  
00:30:12,789 --> 00:30:10,260  
sts-107 it was my very first flight

510  
00:30:16,250 --> 00:30:12,799  
as the Director of flight cooperations

511  
00:30:16,970 --> 00:30:16,260  
and I rode out to the pad with that crew

512  
00:30:19,970 --> 00:30:16,980  
again

513  
00:30:23,930 --> 00:30:19,980

and and that's the last time I saw them

514

00:30:26,990 --> 00:30:23,940

and as Pam mentioned uh 20 years ago we

515

00:30:29,870 --> 00:30:27,000

were standing on the Midfield at the

516

00:30:31,909 --> 00:30:29,880

runway waiting for the crew to come home

517

00:30:33,470 --> 00:30:31,919

and they didn't come home

518

00:30:40,850 --> 00:30:33,480

and

519

00:30:43,310 --> 00:30:40,860

that it was preventable I knew we could

520

00:30:46,970 --> 00:30:43,320

have done something in retrospect when

521

00:30:50,149 --> 00:30:46,980

we learned about it and uh it's very

522

00:30:52,250 --> 00:30:50,159

hard I I had

523

00:30:54,409 --> 00:30:52,260

I was the one that had to tell the

524

00:30:56,029 --> 00:30:54,419

families they weren't coming home

525

00:30:57,590 --> 00:30:56,039

I don't ever want to have to do that

526  
00:31:01,430 --> 00:30:57,600  
again

527  
00:31:03,169 --> 00:31:01,440  
we can prevent accidents with people

528  
00:31:05,990 --> 00:31:03,179  
flying in space

529  
00:31:07,789 --> 00:31:06,000  
that's why our day of remembrance is so

530  
00:31:10,010 --> 00:31:07,799  
important that's why it's so important

531  
00:31:12,649 --> 00:31:10,020  
that we don't forget these lessons that

532  
00:31:15,590 --> 00:31:12,659  
we've learned and more than technical it

533  
00:31:18,649 --> 00:31:15,600  
was really cultural it was creating that

534  
00:31:20,810 --> 00:31:18,659  
environment to be able to speak up to be

535  
00:31:23,750 --> 00:31:20,820  
heard to focus on the task at hand

536  
00:31:27,230 --> 00:31:23,760  
because it can happen to us

537  
00:31:30,110 --> 00:31:27,240  
uh but we can't explore space we can

538  
00:31:32,630 --> 00:31:30,120

break the boundaries without having to

539

00:31:35,510 --> 00:31:32,640

suffer the loss accrue if we do our jobs

540

00:31:37,490 --> 00:31:35,520

if we stay focused if we create an

541

00:31:40,070 --> 00:31:37,500

environment where everybody can be heard

542

00:31:41,750 --> 00:31:40,080

all right and and that we actually

543

00:31:44,630 --> 00:31:41,760

listen and there's a difference between

544

00:31:46,789 --> 00:31:44,640

hearing and listening all right that we

545

00:31:50,149 --> 00:31:46,799

actually listen to what's being said and

546

00:31:52,610 --> 00:31:50,159

that we encourage everybody to be part

547

00:31:55,130 --> 00:31:52,620

of the discussion to be part of

548

00:31:58,669 --> 00:31:55,140

answering the solutions that we need to

549

00:32:00,230 --> 00:31:58,679

ensure that we fly safely okay and I

550

00:32:02,210 --> 00:32:00,240

don't want to ever forget

551

00:32:04,090 --> 00:32:02,220

I don't want any of us to forget and

552

00:32:06,350 --> 00:32:04,100

there are so many of us that are new

553

00:32:09,289 --> 00:32:06,360

when I was down with Kennedy's face

554

00:32:11,269 --> 00:32:09,299

center six years ago probably when I was

555

00:32:12,710 --> 00:32:11,279

a director I was having an all hands and

556

00:32:14,630 --> 00:32:12,720

I asked everybody in the auditorium the

557

00:32:16,430 --> 00:32:14,640

auditorium was packed and I said how

558

00:32:19,070 --> 00:32:16,440

many were not here

559

00:32:20,870 --> 00:32:19,080

when we stopped flying the shuttle and

560

00:32:22,070 --> 00:32:20,880

there was over a third of the audience

561

00:32:23,870 --> 00:32:22,080

raised their hand they weren't working

562

00:32:26,149 --> 00:32:23,880

at Nasa when we were flying the shuttle

563

00:32:28,490 --> 00:32:26,159

so how many were not here when we when

564

00:32:31,070 --> 00:32:28,500

we lost Colombia

565

00:32:34,010 --> 00:32:31,080

that's why we can't forget all right we

566

00:32:37,010 --> 00:32:34,020

have to continue to keep these lessons

567

00:32:41,330 --> 00:32:37,020

that we've learned alive that's up to us

568

00:32:44,710 --> 00:32:41,340

okay and I just want you to know

569

00:32:47,210 --> 00:32:44,720

how much I enjoy working with the

570

00:32:49,850 --> 00:32:47,220

administrator and Pam because they know

571

00:32:52,310 --> 00:32:49,860

what it's all about and believe me they

572

00:32:55,909 --> 00:32:52,320

put safety Above All Else and the

573

00:32:57,590 --> 00:32:55,919

decisions that we make uh I've been at

574

00:33:00,230 --> 00:32:57,600

meetings with the administrator nobody

575

00:33:02,630 --> 00:33:00,240

pulls harder on it than he does when

576  
00:33:04,010 --> 00:33:02,640  
we're talking about uh sending Crews

577  
00:33:05,450 --> 00:33:04,020  
into space

578  
00:33:07,190 --> 00:33:05,460  
so

579  
00:33:10,190 --> 00:33:07,200  
I ask all of you

580  
00:33:12,049 --> 00:33:10,200  
please don't forget if you get down to

581  
00:33:15,230 --> 00:33:12,059  
the Kennedy Space Center go to Forever

582  
00:33:17,289 --> 00:33:15,240  
Remembered at the Atlantis facility pay

583  
00:33:20,810 --> 00:33:17,299  
honor to those Crews

584  
00:33:23,090 --> 00:33:20,820  
and do not forget the lessons that we've

585  
00:33:26,570 --> 00:33:23,100  
learned in the past because we are going

586  
00:33:29,870 --> 00:33:26,580  
to continue to move ahead to inspire the

587  
00:33:33,169 --> 00:33:29,880  
world through Discovery and uh you know

588  
00:33:35,690 --> 00:33:33,179

we got the best mission of any agency

589

00:33:38,029 --> 00:33:35,700

anywhere and that's to explore the

590

00:33:40,909 --> 00:33:38,039

unknown and air and space to innovate

591

00:33:42,830 --> 00:33:40,919

for the benefit of humanity and Inspire

592

00:33:45,289 --> 00:33:42,840

the world through Discovery and we can

593

00:33:46,890 --> 00:33:45,299

do it safely thank you

594

00:33:52,430 --> 00:33:46,900

foreign

595

00:33:53,870 --> 00:33:52,440

[Applause]

596

00:33:56,990 --> 00:33:53,880

thank you all for your thoughtful

597

00:33:59,269 --> 00:33:57,000

presentations well now headed to the Q a

598

00:34:01,610 --> 00:33:59,279

portion of today's event if you're

599

00:34:02,930 --> 00:34:01,620

joining us here live at headquarters you

600

00:34:05,029 --> 00:34:02,940

can come to the mic at the left hand

601  
00:34:09,470 --> 00:34:05,039  
side of the room we also have questions

602  
00:34:11,270 --> 00:34:09,480  
submitted from across the centers online

603  
00:34:13,909 --> 00:34:11,280  
our first question will come from Brian

604  
00:34:15,889 --> 00:34:13,919  
at Ames he asks how do we change the

605  
00:34:18,770 --> 00:34:15,899  
mindset of safety versus Mission

606  
00:34:21,950 --> 00:34:18,780  
progress to help us internalize that

607  
00:34:23,930 --> 00:34:21,960  
safety is Mission progress

608  
00:34:26,869 --> 00:34:23,940  
I think I'd like to take that one for

609  
00:34:30,290 --> 00:34:26,879  
starters and you can chime in but you

610  
00:34:32,030 --> 00:34:30,300  
know first off safety is part of our

611  
00:34:34,550 --> 00:34:32,040  
mission we put the mission first right

612  
00:34:37,250 --> 00:34:34,560  
but when you talk about safety in the

613  
00:34:40,010 --> 00:34:37,260

mission you know if you do not execute

614

00:34:41,930 --> 00:34:40,020

the mission safely what happens you

615

00:34:44,270 --> 00:34:41,940

damage people and equipment and then

616

00:34:46,909 --> 00:34:44,280

what happens it takes longer and you're

617

00:34:49,430 --> 00:34:46,919

not successful right so safety has to be

618

00:34:51,889 --> 00:34:49,440

inherent in everything that we do if we

619

00:34:52,909 --> 00:34:51,899

do things safely and correctly we

620

00:34:55,609 --> 00:34:52,919

actually

621

00:34:58,430 --> 00:34:55,619

make up more time it costs us less

622

00:34:59,930 --> 00:34:58,440

nobody gets hurt it is absolutely what

623

00:35:02,630 --> 00:34:59,940

we need to do so I don't see them as

624

00:35:07,730 --> 00:35:02,640

separate I see him as safety is part of

625

00:35:13,130 --> 00:35:10,430

thank you so much our next question is

626  
00:35:15,230 --> 00:35:13,140  
from Stephanie here at headquarters she

627  
00:35:17,569 --> 00:35:15,240  
asks how can parts of the NASA Workforce

628  
00:35:21,290 --> 00:35:17,579  
who are not Engineers contribute

629  
00:35:25,310 --> 00:35:21,300  
directly to our safety culture

630  
00:35:27,890 --> 00:35:25,320  
I'd like to take that one I think

631  
00:35:30,470 --> 00:35:27,900  
that actually we are a team and that

632  
00:35:32,810 --> 00:35:30,480  
everybody is contributing and in fact

633  
00:35:35,750 --> 00:35:32,820  
what's what's really interesting is

634  
00:35:37,790 --> 00:35:35,760  
often the person in the room who knows

635  
00:35:40,970 --> 00:35:37,800  
the least about the subject asks the

636  
00:35:42,770 --> 00:35:40,980  
most penetrating and basic question that

637  
00:35:45,950 --> 00:35:42,780  
causes everybody to stay take a step

638  
00:35:49,790 --> 00:35:45,960

back and say uh-huh so that's you know

639

00:35:52,550 --> 00:35:49,800

core to our values of uh speaking up uh

640

00:35:54,829 --> 00:35:52,560

to our safety culture uh you know I

641

00:35:56,470 --> 00:35:54,839

often say diversity and inclusion is

642

00:35:58,730 --> 00:35:56,480

actually a part of our safety culture

643

00:36:01,069 --> 00:35:58,740

and in fact

644

00:36:03,710 --> 00:36:01,079

um it's really important that people

645

00:36:06,050 --> 00:36:03,720

feel empowered uh whether they are the

646

00:36:08,690 --> 00:36:06,060

expert in an area or not to speak up

647

00:36:10,250 --> 00:36:08,700

because we actually saw it on the space

648

00:36:12,470 --> 00:36:10,260

shuttle all the time it was often the

649

00:36:14,270 --> 00:36:12,480

crew member who knew the least who would

650

00:36:16,430 --> 00:36:14,280

ask a simple question why can't we try

651

00:36:18,770 --> 00:36:16,440

it like this now sometimes it was like

652

00:36:20,690 --> 00:36:18,780

well we can't and here's why but a lot

653

00:36:23,930 --> 00:36:20,700

of times it was what ended up solving

654

00:36:25,790 --> 00:36:23,940

the problem so please do speak up and I

655

00:36:29,030 --> 00:36:25,800

will just add to that you know it's not

656

00:36:30,650 --> 00:36:29,040

just the non-technical folks it's new

657

00:36:32,569 --> 00:36:30,660

technical folks when you're at a meeting

658

00:36:34,670 --> 00:36:32,579

oftentimes when we're brand new to a

659

00:36:36,530 --> 00:36:34,680

situation we don't feel like we can

660

00:36:38,150 --> 00:36:36,540

speak up we look at the table and we see

661

00:36:40,430 --> 00:36:38,160

all these really experienced people and

662

00:36:41,870 --> 00:36:40,440

we think well they know everything you

663

00:36:43,370 --> 00:36:41,880

know well they don't always know

664

00:36:44,690 --> 00:36:43,380

everything and you bring a new

665

00:36:47,030 --> 00:36:44,700

experience when you come that's why

666

00:36:49,310 --> 00:36:47,040

diversity inclusion is so important if

667

00:36:51,650 --> 00:36:49,320

you have a question at a meeting it it's

668

00:36:53,569 --> 00:36:51,660

incumbent upon you it's mandatory that

669

00:36:55,130 --> 00:36:53,579

you speak up and ask it all right

670

00:36:57,770 --> 00:36:55,140

because it's probably something somebody

671

00:36:59,510 --> 00:36:57,780

else may not have thought of so whenever

672

00:37:02,089 --> 00:36:59,520

we have a meeting everybody needs to be

673

00:37:03,530 --> 00:37:02,099

engaged and if you're brand new to a to

674

00:37:05,450 --> 00:37:03,540

an organization don't think that

675

00:37:07,370 --> 00:37:05,460

everybody else knows it all all right

676  
00:37:09,290 --> 00:37:07,380  
and if you have a question please ask

677  
00:37:11,089 --> 00:37:09,300  
that question

678  
00:37:14,690 --> 00:37:11,099  
yeah a lot of times people are grateful

679  
00:37:19,970 --> 00:37:17,030  
thank you both uh Nicholas at Marshall

680  
00:37:22,790 --> 00:37:19,980  
asks as new human space flight vehicles

681  
00:37:25,010 --> 00:37:22,800  
are planning to become operational with

682  
00:37:27,890 --> 00:37:25,020  
Less Direct NASA oversight compared to

683  
00:37:29,750 --> 00:37:27,900  
previous systems how is NASA ensuring

684  
00:37:31,730 --> 00:37:29,760  
that the safety of government and

685  
00:37:36,349 --> 00:37:31,740  
private astronauts Remains the top

686  
00:37:44,270 --> 00:37:39,130  
well it's a challenge

687  
00:37:46,190 --> 00:37:44,280  
but uh it is the responsibility of us as

688  
00:37:48,730 --> 00:37:46,200

the overseers

689

00:37:52,310 --> 00:37:48,740

even though

690

00:37:55,210 --> 00:37:52,320

we may have a partner in the public

691

00:37:57,890 --> 00:37:55,220

private sector that is

692

00:38:00,770 --> 00:37:57,900

executing the contract

693

00:38:02,870 --> 00:38:00,780

but who at the end of the day if it's a

694

00:38:05,030 --> 00:38:02,880

NASA mission

695

00:38:06,829 --> 00:38:05,040

is responsible

696

00:38:08,589 --> 00:38:06,839

it's us

697

00:38:11,329 --> 00:38:08,599

and therefore

698

00:38:14,390 --> 00:38:11,339

we've got to look over their shoulder

699

00:38:18,829 --> 00:38:14,400

we've got to ask the questions

700

00:38:21,950 --> 00:38:18,839

and use the same degree of rigor

701  
00:38:24,230 --> 00:38:21,960  
that we would if it were a government

702  
00:38:26,870 --> 00:38:24,240  
Mission only

703  
00:38:28,609 --> 00:38:26,880  
even though it is a commercial Mission

704  
00:38:30,230 --> 00:38:28,619  
doing

705  
00:38:32,270 --> 00:38:30,240  
a government

706  
00:38:34,490 --> 00:38:32,280  
payload

707  
00:38:37,010 --> 00:38:34,500  
and I can assure you on these private

708  
00:38:39,410 --> 00:38:37,020  
astronaut missions to go to the ISS

709  
00:38:41,150 --> 00:38:39,420  
this man asked more questions than

710  
00:38:46,069 --> 00:38:41,160  
anybody to ensure that it's being

711  
00:38:48,410 --> 00:38:46,079  
executed safely now I'll also add on a

712  
00:38:50,569 --> 00:38:48,420  
purely private missions that are not

713  
00:38:52,730 --> 00:38:50,579

under NASA that don't go to the

714

00:38:55,910 --> 00:38:52,740

International Space Station if you look

715

00:38:57,130 --> 00:38:55,920

at SpaceX for example they have learned

716

00:39:00,829 --> 00:38:57,140

from us

717

00:39:03,470 --> 00:39:00,839

on the NASA missions that we fly to ISS

718

00:39:06,050 --> 00:39:03,480

and if you look at how they run their

719

00:39:08,329 --> 00:39:06,060

totally private astronaut missions they

720

00:39:11,089 --> 00:39:08,339

run them in the same manner as they

721

00:39:12,829 --> 00:39:11,099

execute the missions for us so what we

722

00:39:15,349 --> 00:39:12,839

have learned in the many years a human

723

00:39:18,470 --> 00:39:15,359

space flight that we've developed all

724

00:39:22,069 --> 00:39:18,480

the procedures and safety checks that we

725

00:39:25,310 --> 00:39:22,079

have in place we share those right and

726  
00:39:28,130 --> 00:39:25,320  
you'll find that others follow our

727  
00:39:30,589 --> 00:39:28,140  
example we we lead

728  
00:39:31,790 --> 00:39:30,599  
and I'll I'll kind of wrap it up by

729  
00:39:33,230 --> 00:39:31,800  
saying

730  
00:39:35,930 --> 00:39:33,240  
if

731  
00:39:38,150 --> 00:39:35,940  
human commercial human space flight

732  
00:39:40,310 --> 00:39:38,160  
takes off which we think it will the

733  
00:39:42,890 --> 00:39:40,320  
same way commercial Aviation did

734  
00:39:46,550 --> 00:39:42,900  
at some point the industry will have to

735  
00:39:48,170 --> 00:39:46,560  
learn its lessons on its own we are in a

736  
00:39:50,150 --> 00:39:48,180  
very interesting place right now we have

737  
00:39:53,390 --> 00:39:50,160  
a close relationship with the FAA which

738  
00:39:56,390 --> 00:39:53,400

license our licenses our cargo and crew

739

00:39:59,750 --> 00:39:56,400

launches but only for Public Safety and

740

00:40:01,910 --> 00:39:59,760

so we work closely with them and we will

741

00:40:04,069 --> 00:40:01,920

continue to work closely with them as

742

00:40:06,589 --> 00:40:04,079

they take on more responsibilities in

743

00:40:08,390 --> 00:40:06,599

this area right now we have a lot of

744

00:40:11,390 --> 00:40:08,400

Engagement a lot of people don't realize

745

00:40:13,730 --> 00:40:11,400

how closely we scrutinize all the

746

00:40:16,550 --> 00:40:13,740

activities on our commercial cargo

747

00:40:19,490 --> 00:40:16,560

commercial crew our private astronaut

748

00:40:22,670 --> 00:40:19,500

missions we're very very involved as

749

00:40:25,430 --> 00:40:22,680

time goes on we hope to transfer that

750

00:40:27,650 --> 00:40:25,440

knowledge as things go forward but I

751

00:40:29,930 --> 00:40:27,660

think for at least a decade or more to

752

00:40:31,849 --> 00:40:29,940

come we're going to be extremely engaged

753

00:40:34,670 --> 00:40:31,859

with all those International or with

754

00:40:37,250 --> 00:40:34,680

those uh commercial Partners as we go

755

00:40:38,870 --> 00:40:37,260

forward but eventually

756

00:40:40,790 --> 00:40:38,880

they're going to have to grow up and

757

00:40:42,650 --> 00:40:40,800

have their own regulator someday and

758

00:40:45,290 --> 00:40:42,660

we're going to support that as best we

759

00:40:47,990 --> 00:40:45,300

can with all the knowledge of the agency

760

00:40:53,750 --> 00:40:48,000

we learned from my commercial Partners

761

00:40:56,990 --> 00:40:53,760

but they learn from for from us as well

762

00:41:00,950 --> 00:40:57,000

and especially they learn from us about

763

00:41:05,569 --> 00:41:03,770

well our next question from Darren at

764

00:41:07,790 --> 00:41:05,579

Goddard is for you administrator Nelson

765

00:41:10,310 --> 00:41:07,800

he asked how did you feel about the

766

00:41:12,349 --> 00:41:10,320

risks Brave astronauts faced after the

767

00:41:14,270 --> 00:41:12,359

Challenger disaster knowing you had just

768

00:41:16,630 --> 00:41:14,280

flown a shuttle mission earlier the same

769

00:41:25,910 --> 00:41:20,690

ten days before well the the honest

770

00:41:29,210 --> 00:41:25,920

answer is I've collapsed to my knees

771

00:41:33,349 --> 00:41:29,220

and I cried out

772

00:41:42,710 --> 00:41:38,329

uh and I I think uh you've heard the

773

00:41:44,450 --> 00:41:42,720

experience of of Bob that wrote out to

774

00:41:49,010 --> 00:41:44,460

the path

775

00:41:52,250 --> 00:41:49,020

with the crew of 107. Colombia

776  
00:41:56,569 --> 00:41:52,260  
and they didn't land

777  
00:42:04,370 --> 00:42:01,069  
it's now Our obligation

778  
00:42:09,410 --> 00:42:04,380  
to try to

779  
00:42:12,829 --> 00:42:09,420  
share with you what we feel intensely

780  
00:42:17,569 --> 00:42:12,839  
that is so important for NASA as we

781  
00:42:21,829 --> 00:42:19,849  
we're going back to the moon but a lot

782  
00:42:24,790 --> 00:42:21,839  
of it's unknown

783  
00:42:27,530 --> 00:42:24,800  
because we're doing things on the moon

784  
00:42:29,870 --> 00:42:27,540  
that we've never done we're going to a

785  
00:42:32,990 --> 00:42:29,880  
different part of the Moon

786  
00:42:34,790 --> 00:42:33,000  
you ought to see what the South Pole of

787  
00:42:37,970 --> 00:42:34,800  
the Moon looks like

788  
00:42:43,430 --> 00:42:37,980

it's not this bright shiny equatorial

789

00:42:46,370 --> 00:42:43,440

area where we landed on Apollo

790

00:42:50,930 --> 00:42:46,380

is it is a hazardous

791

00:42:53,450 --> 00:42:50,940

severely shadowed and therefore dark

792

00:42:55,730 --> 00:42:53,460

depressions

793

00:42:59,690 --> 00:42:55,740

and craters

794

00:43:02,809 --> 00:42:59,700

and we've got to be right on the money

795

00:43:04,430 --> 00:43:02,819

so not only are we going back to a new

796

00:43:08,089 --> 00:43:04,440

moon

797

00:43:11,210 --> 00:43:08,099

we're going to do new things in order as

798

00:43:13,849 --> 00:43:11,220

we venture out

799

00:43:15,170 --> 00:43:13,859

and that's going to bring a lot of

800

00:43:17,630 --> 00:43:15,180

Hazards

801  
00:43:19,790 --> 00:43:17,640  
and that's where safety is going to be

802  
00:43:23,390 --> 00:43:19,800  
so important

803  
00:43:26,510 --> 00:43:23,400  
thank you sir our next question comes

804  
00:43:28,849 --> 00:43:26,520  
from Lewis at JSC he asked how do you

805  
00:43:33,730 --> 00:43:28,859  
feel about group think and do you see

806  
00:43:40,069 --> 00:43:35,990  
groupthink occurs wherever there are

807  
00:43:43,430 --> 00:43:40,079  
groups that is just part of human nature

808  
00:43:45,589 --> 00:43:43,440  
um it's I don't think uh I don't think

809  
00:43:48,290 --> 00:43:45,599  
it's just a part of who we are that's

810  
00:43:49,790 --> 00:43:48,300  
there's a reason why it's called that I

811  
00:43:52,970 --> 00:43:49,800  
think the key thing is to put the

812  
00:43:55,550 --> 00:43:52,980  
processes in place uh and the culture in

813  
00:43:57,829 --> 00:43:55,560

place and the encouragement in place uh

814

00:44:01,010 --> 00:43:57,839

to fight against it uh every single day

815

00:44:03,589 --> 00:44:01,020

and this again gets to the ability to

816

00:44:05,329 --> 00:44:03,599

speak up the ability to imagine what if

817

00:44:07,970 --> 00:44:05,339

the worst happened and then ask the

818

00:44:10,069 --> 00:44:07,980

question and then work together as a

819

00:44:13,910 --> 00:44:10,079

team to try to find a creative solution

820

00:44:20,390 --> 00:44:17,750

thank you our next question is from

821

00:44:22,730 --> 00:44:20,400

jeffreya Johnson what are we doing as an

822

00:44:26,390 --> 00:44:22,740

agency to keep our lessons learned alive

823

00:44:29,930 --> 00:44:26,400

Beyond an annual day of remembrance

824

00:44:32,870 --> 00:44:29,940

oh my gosh we got Saturn training uh on

825

00:44:34,849 --> 00:44:32,880

the ninth floor we have a monthly safety

826

00:44:36,970 --> 00:44:34,859

meeting that we have we bring up

827

00:44:39,950 --> 00:44:36,980

different topics

828

00:44:42,730 --> 00:44:39,960

there are just so many ways this needs

829

00:44:46,130 --> 00:44:42,740

to be brought out every time I give a

830

00:44:48,589 --> 00:44:46,140

briefing to a new group of senior

831

00:44:50,150 --> 00:44:48,599

Executives I always bring up safety I

832

00:44:52,130 --> 00:44:50,160

always bring up the Lessons Learned I

833

00:44:54,170 --> 00:44:52,140

always bring up the need to have

834

00:44:57,530 --> 00:44:54,180

interactive discussions and make sure

835

00:45:00,349 --> 00:44:57,540

everybody speaks up so it's incumbent

836

00:45:03,770 --> 00:45:00,359

upon us as Leaders to not let this be

837

00:45:05,210 --> 00:45:03,780

forgotten all supervisors uh when you

838

00:45:06,770 --> 00:45:05,220

take that training you know it's not

839

00:45:08,930 --> 00:45:06,780

just for you it's for the team that

840

00:45:11,089 --> 00:45:08,940

you're leading it's so that you learn so

841

00:45:13,370 --> 00:45:11,099

that you can create an environment to

842

00:45:16,069 --> 00:45:13,380

keep this going there's just so many

843

00:45:18,829 --> 00:45:16,079

ways that we continue to reinforce this

844

00:45:20,390 --> 00:45:18,839

yeah I'm excited about the uh workshops

845

00:45:22,309 --> 00:45:20,400

that we're going to have on a series of

846

00:45:24,109 --> 00:45:22,319

topics that

847

00:45:26,930 --> 00:45:24,119

um the office of safety and Mission

848

00:45:28,730 --> 00:45:26,940

Assurance is put together for us on some

849

00:45:31,309 --> 00:45:28,740

some key topics

850

00:45:33,410 --> 00:45:31,319

um you know I you know would also like

851  
00:45:35,990 --> 00:45:33,420  
to Echo what Bob said I think what's

852  
00:45:38,510 --> 00:45:36,000  
critically important is not that you're

853  
00:45:42,650 --> 00:45:38,520  
all passive listeners to this today but

854  
00:45:45,890 --> 00:45:42,660  
you are active proponents it's on you to

855  
00:45:48,950 --> 00:45:45,900  
listen so the senior leaders the front

856  
00:45:50,690 --> 00:45:48,960  
line supervisors and the individuals you

857  
00:45:52,970 --> 00:45:50,700  
are responsible for carrying this

858  
00:45:54,770 --> 00:45:52,980  
message and to continue to promote it

859  
00:45:56,750 --> 00:45:54,780  
every day this isn't just something that

860  
00:45:58,970 --> 00:45:56,760  
you're listening to us say saying and go

861  
00:46:01,790 --> 00:45:58,980  
okay you actually have a responsibility

862  
00:46:03,770 --> 00:46:01,800  
to help communicate it uh bill I don't

863  
00:46:07,130 --> 00:46:03,780

know if you have anything to ask and we

864

00:46:10,809 --> 00:46:07,140

take very seriously our responsibility

865

00:46:15,050 --> 00:46:10,819

with the safety advisory panel

866

00:46:18,829 --> 00:46:15,060

uh we have frequent meetings with them

867

00:46:21,650 --> 00:46:18,839

and that panel is populated with not

868

00:46:24,530 --> 00:46:21,660

only former NASA flight directors and

869

00:46:26,569 --> 00:46:24,540

scientists and Engineers but also

870

00:46:28,569 --> 00:46:26,579

astronauts

871

00:46:31,370 --> 00:46:28,579

they asked the probing questions

872

00:46:33,710 --> 00:46:31,380

interestingly there are only two

873

00:46:38,210 --> 00:46:33,720

advisory panels

874

00:46:41,089 --> 00:46:38,220

set up by law to NASA one is the NASA

875

00:46:44,870 --> 00:46:41,099

advisory Council and the other is the

876

00:46:47,809 --> 00:46:44,880

safety advisory set up in law

877

00:46:49,609 --> 00:46:47,819

and uh that's just another check and

878

00:46:51,589 --> 00:46:49,619

balance on us

879

00:46:54,490 --> 00:46:51,599

as

880

00:46:58,130 --> 00:46:54,500

trying to offer some leadership to NASA

881

00:47:00,890 --> 00:46:58,140

to get that outside information that's

882

00:47:03,950 --> 00:47:00,900

why the three of us take so seriously

883

00:47:06,170 --> 00:47:03,960

these Town Hall meetings when we're

884

00:47:08,510 --> 00:47:06,180

coming to each of the centers

885

00:47:10,210 --> 00:47:08,520

we want you to show up and if you've got

886

00:47:13,250 --> 00:47:10,220

any concern

887

00:47:15,650 --> 00:47:13,260

especially about safety

888

00:47:17,450 --> 00:47:15,660

please bring it up if you don't want to

889

00:47:19,670 --> 00:47:17,460

bring it up in front of everybody else

890

00:47:22,309 --> 00:47:19,680

pull us aside

891

00:47:24,410 --> 00:47:22,319

that's why we're going out there to hear

892

00:47:26,569 --> 00:47:24,420

from you

893

00:47:28,630 --> 00:47:26,579

I'd also like to add

894

00:47:31,790 --> 00:47:28,640

um down at the Kennedy Space Center

895

00:47:35,690 --> 00:47:31,800

within the Vehicle Assembly Building is

896

00:47:38,690 --> 00:47:35,700

where the debris from Columbia is stored

897

00:47:40,670 --> 00:47:38,700

and Mike Chanelli is responsible for

898

00:47:43,270 --> 00:47:40,680

that within the safety organization at

899

00:47:46,010 --> 00:47:43,280

NASA headquarters detailed down there

900

00:47:49,190 --> 00:47:46,020

there's an Apollo Challenger Lessons

901  
00:47:51,849 --> 00:47:49,200  
Learned group that he's in responsible

902  
00:47:57,109 --> 00:47:51,859  
for he has resources available

903  
00:48:01,430 --> 00:47:57,119  
to anyone on Challenger Columbia Apollo

904  
00:48:04,430 --> 00:48:01,440  
one that you can use as training aids

905  
00:48:06,230 --> 00:48:04,440  
for your team just send Mike a note and

906  
00:48:09,890 --> 00:48:06,240  
I'm sure he'd be happy to get with you

907  
00:48:13,309 --> 00:48:09,900  
for me I think it's important you know I

908  
00:48:17,270 --> 00:48:13,319  
encourage every new senior executive at

909  
00:48:20,150 --> 00:48:17,280  
some point to walk through that Colombia

910  
00:48:22,849 --> 00:48:20,160  
where the Columbia debris is and stored

911  
00:48:25,069 --> 00:48:22,859  
down there and see the consequences of

912  
00:48:27,109 --> 00:48:25,079  
the decisions that we make you know

913  
00:48:29,030 --> 00:48:27,119

nobody that made the decisions on

914

00:48:30,890 --> 00:48:29,040

Challenger Columbia thought they were

915

00:48:33,170 --> 00:48:30,900

putting the crew at risk they thought

916

00:48:35,329 --> 00:48:33,180

they were making a good decision but

917

00:48:37,490 --> 00:48:35,339

they didn't have all the data all right

918

00:48:38,930 --> 00:48:37,500

and we have to ensure that we have all

919

00:48:40,790 --> 00:48:38,940

the data so that we make informed

920

00:48:43,670 --> 00:48:40,800

decisions that's why it's so important

921

00:48:44,750 --> 00:48:43,680

to engage everyone to ask questions and

922

00:48:47,690 --> 00:48:44,760

to listen

923

00:48:49,150 --> 00:48:47,700

and Bob already recommended to you in

924

00:48:52,490 --> 00:48:49,160

his remarks

925

00:48:57,829 --> 00:48:52,500

something that he's responsible for and

926  
00:49:00,710 --> 00:48:57,839  
that is in the Atlantis exhibit at the

927  
00:49:05,750 --> 00:49:00,720  
visitor center at KSC

928  
00:49:09,770 --> 00:49:05,760  
uh is a memorial for the two space

929  
00:49:12,890 --> 00:49:09,780  
shuttle Crews that we lost

930  
00:49:18,290 --> 00:49:12,900  
if you just walk in there

931  
00:49:26,690 --> 00:49:22,010  
and the first thing you see in a total

932  
00:49:30,170 --> 00:49:26,700  
dark room in a black backdrop

933  
00:49:33,170 --> 00:49:30,180  
is a piece of the side of Challenger

934  
00:49:36,290 --> 00:49:33,180  
with the American flag

935  
00:49:37,930 --> 00:49:36,300  
and then you turn to the right and in

936  
00:49:40,550 --> 00:49:37,940  
that similar

937  
00:49:43,849 --> 00:49:40,560  
darkened background

938  
00:49:47,030 --> 00:49:43,859

you see the steel frame of the cockpit

939

00:49:51,290 --> 00:49:49,370

they're not many people that can walk

940

00:49:55,309 --> 00:49:51,300

out of that room

941

00:49:58,750 --> 00:49:56,809

thank you we just have a couple more

942

00:50:01,130 --> 00:49:58,760

questions submitted online

943

00:50:05,390 --> 00:50:01,140

Shannon Johnson asks how can we continue

944

00:50:10,609 --> 00:50:07,550

a question how can we continue to be

945

00:50:14,589 --> 00:50:10,619

safe from covid-19

946

00:50:17,150 --> 00:50:14,599

first of all get your shots

947

00:50:19,790 --> 00:50:17,160

the question is how can you be safe from

948

00:50:22,069 --> 00:50:19,800

Cobia 19.

949

00:50:25,309 --> 00:50:22,079

the proof's in the pudding

950

00:50:30,290 --> 00:50:25,319

talk to our NASA doctors they will tell

951  
00:50:34,010 --> 00:50:30,300  
you that you will have immunities if you

952  
00:50:36,670 --> 00:50:34,020  
continue to get those boosters and now

953  
00:50:39,770 --> 00:50:36,680  
it's out in the Press today

954  
00:50:43,250 --> 00:50:39,780  
uh they think they're going to get to an

955  
00:50:45,050 --> 00:50:43,260  
annual shot just like a flu shot

956  
00:50:47,870 --> 00:50:45,060  
for covet

957  
00:50:50,990 --> 00:50:47,880  
uh that's the most important thing that

958  
00:50:53,650 --> 00:50:51,000  
you can do and then of course uh you

959  
00:50:57,410 --> 00:50:53,660  
know the the normal things about hygiene

960  
00:51:01,130 --> 00:50:57,420  
we went through that with the SARS scare

961  
00:51:04,370 --> 00:51:01,140  
uh some time ago 20 years ago or so we

962  
00:51:07,010 --> 00:51:04,380  
went through that with the Ebola scare

963  
00:51:07,970 --> 00:51:07,020

just personal cleanliness wash your

964

00:51:10,430 --> 00:51:07,980

hands

965

00:51:12,470 --> 00:51:10,440

uh you go through a doorway you're

966

00:51:15,290 --> 00:51:12,480

touching a door handle that a lot of

967

00:51:18,170 --> 00:51:15,300

people have touched no telling

968

00:51:21,230 --> 00:51:18,180

so uh you know those kind of things to

969

00:51:23,930 --> 00:51:22,549

thank you

970

00:51:26,809 --> 00:51:23,940

and our last question is from Jimmy

971

00:51:28,609 --> 00:51:26,819

Johnson with Dave remembrance coming up

972

00:51:31,190 --> 00:51:28,619

how can we remind ourselves that

973

00:51:35,450 --> 00:51:31,200

normalization of deviants can play a

974

00:51:38,630 --> 00:51:35,460

role in accidents small and large alike

975

00:51:42,170 --> 00:51:38,640

yeah you know this is this is really

976  
00:51:46,250 --> 00:51:42,180  
important and we we've seen it you know

977  
00:51:48,650 --> 00:51:46,260  
in flying on uh our SpaceX vehicles uh

978  
00:51:50,809 --> 00:51:48,660  
even today where

979  
00:51:53,750 --> 00:51:50,819  
you know something's not right but

980  
00:51:56,750 --> 00:51:53,760  
nothing goes wrong so we come to accept

981  
00:51:58,670 --> 00:51:56,760  
it and we have to question everything I

982  
00:52:00,770 --> 00:51:58,680  
think the main thing we do is we have to

983  
00:52:03,650 --> 00:52:00,780  
question when something's not right and

984  
00:52:06,470 --> 00:52:03,660  
we have to you know some will say that

985  
00:52:09,230 --> 00:52:06,480  
uh Apollo is a failure of imagination

986  
00:52:12,890 --> 00:52:09,240  
what could go wrong all right and

987  
00:52:14,930 --> 00:52:12,900  
anything that isn't exactly as it was

988  
00:52:17,750 --> 00:52:14,940

meant to be we have to question what

989

00:52:20,750 --> 00:52:17,760

could go wrong if that uh that happened

990

00:52:23,510 --> 00:52:20,760

we can't accept just because nothing bad

991

00:52:25,790 --> 00:52:23,520

happened if it's not right we need to

992

00:52:28,490 --> 00:52:25,800

understand it and do our best to

993

00:52:31,609 --> 00:52:28,500

mitigate the risks and to fix it

994

00:52:35,089 --> 00:52:31,619

yeah I'll just add to me a key part of

995

00:52:37,790 --> 00:52:35,099

normalization of deviance is complacency

996

00:52:40,130 --> 00:52:37,800

um it's the sense that again it can't

997

00:52:42,589 --> 00:52:40,140

happen to us it hasn't happened the last

998

00:52:44,750 --> 00:52:42,599

five flights or ten flights or five

999

00:52:45,410 --> 00:52:44,760

years or whatever

1000

00:52:48,710 --> 00:52:45,420

um

1001  
00:52:50,870 --> 00:52:48,720  
one of the uh amazing things that we do

1002  
00:52:54,230 --> 00:52:50,880  
and and I think Bill you talk about it

1003  
00:52:56,569 --> 00:52:54,240  
very eloquently is the amazing things

1004  
00:52:58,250 --> 00:52:56,579  
that we do in our mission we just have

1005  
00:53:01,970 --> 00:52:58,260  
to remind ourselves every day we are

1006  
00:53:03,829 --> 00:53:01,980  
doing hard stuff and uh and you know we

1007  
00:53:06,530 --> 00:53:03,839  
kind of get used to being awesome last

1008  
00:53:09,109 --> 00:53:06,540  
year was a great example of that we were

1009  
00:53:11,150 --> 00:53:09,119  
awesome awesome awesome but

1010  
00:53:14,089 --> 00:53:11,160  
um that also can can bring with it that

1011  
00:53:16,549 --> 00:53:14,099  
sense of complacency and so I think uh

1012  
00:53:19,849 --> 00:53:16,559  
that belief that it can happen to you is

1013  
00:53:23,089 --> 00:53:19,859

a very important part of that asking the

1014

00:53:25,010 --> 00:53:23,099

question hey that that was a you know a

1015

00:53:27,109 --> 00:53:25,020

deviation and you know what could go

1016

00:53:29,089 --> 00:53:27,119

wrong so I think it's taken that

1017

00:53:31,790 --> 00:53:29,099

personal step to both own the coolness

1018

00:53:35,890 --> 00:53:31,800

of what we do and the hardness of it and

1019

00:53:40,730 --> 00:53:38,510

thank you all so much and thank you all

1020

00:53:43,130 --> 00:53:40,740

for attending and for your questions and

1021

00:53:44,750 --> 00:53:43,140

tuning in today before we'd head out I'd

1022

00:53:53,589 --> 00:53:44,760

like to hand it back to administrator

1023

00:53:59,510 --> 00:53:56,750

thank you for joining us in this town

1024

00:54:06,470 --> 00:54:03,049

I hope now we're going to have a series

1025

00:54:09,490 --> 00:54:06,480

of day of remembrance engagements over

1026

00:54:13,549 --> 00:54:09,500

the course of the next week

1027

00:54:15,650 --> 00:54:13,559

and may we carry forth the spirit of all

1028

00:54:17,930 --> 00:54:15,660

who've given their lives in the name of

1029

00:54:21,410 --> 00:54:17,940

exploration

1030

00:56:21,430 --> 00:54:21,420

and I ask you to join me in a moment of