

Johnson Space

Space Center



1
00:00:03,909 --> 00:00:02,310
good afternoon everybody i'm josh byerly

2
00:00:05,670 --> 00:00:03,919
announces johnson space center here in

3
00:00:07,430 --> 00:00:05,680
houston texas we're going to be talking

4
00:00:08,790 --> 00:00:07,440
today about the spacewalk earlier this

5
00:00:11,270 --> 00:00:08,800
morning by chris cassidy and luca

6
00:00:13,110 --> 00:00:11,280
parmitano that was ended earlier than

7
00:00:15,350 --> 00:00:13,120
planned the spacewalk was due to last

8
00:00:16,950 --> 00:00:15,360
about six and a half hours to my left is

9
00:00:18,630 --> 00:00:16,960
kenny todd the chairman of the mission

10
00:00:20,150 --> 00:00:18,640
management team we're also joined by

11
00:00:22,150 --> 00:00:20,160
david korth who was the flight director

12
00:00:24,150 --> 00:00:22,160
on console today and we're also joined

13
00:00:25,670 --> 00:00:24,160

by karina eversley who is the spacewalk

14

00:00:27,750 --> 00:00:25,680

officer that was overseeing today's

15

00:00:28,630 --> 00:00:27,760

operations as well we'll hear from each

16

00:00:30,310 --> 00:00:28,640

one of them and we'll take some

17

00:00:31,910 --> 00:00:30,320

questions both here in houston at other

18

00:00:34,229 --> 00:00:31,920

nasa centers and also on the phone lines

19

00:00:35,830 --> 00:00:34,239

we'll get started with kenny

20

00:00:39,590 --> 00:00:35,840

thanks josh first of all

21

00:00:42,150 --> 00:00:39,600

i want to thank the ops team today

22

00:00:44,069 --> 00:00:42,160

the team had a good plan going in

23

00:00:46,310 --> 00:00:44,079

sometimes you have to adjust and this is

24

00:00:48,790 --> 00:00:46,320

one of those days where early on we had

25

00:00:50,310 --> 00:00:48,800

to make adjustments and and david karina

26

00:00:53,350 --> 00:00:50,320

and the rest of the ops team did a great

27

00:00:55,189 --> 00:00:53,360

job and uh and uh making sure that that

28

00:00:57,189 --> 00:00:55,199

we we did our number one objective which

29

00:00:59,910 --> 00:00:57,199

is to get the crew back in the airlock

30

00:01:02,470 --> 00:00:59,920

get them in into the iss safely and and

31

00:01:04,549 --> 00:01:02,480

that that goal was accomplished so uh

32

00:01:06,950 --> 00:01:04,559

from that standpoint i think i think we

33

00:01:09,109 --> 00:01:06,960

can all breathe a sigh of relief and say

34

00:01:12,789 --> 00:01:09,119

that indeed we did have some some

35

00:01:13,750 --> 00:01:12,799

success today so um crew's in good shape

36

00:01:16,789 --> 00:01:13,760

and

37

00:01:19,270 --> 00:01:16,799

you a little bit more about about the

38

00:01:21,270 --> 00:01:19,280

specifics of what happened today

39

00:01:22,870 --> 00:01:21,280

as far as where we go from here

40

00:01:24,870 --> 00:01:22,880

clearly we have a problem at this point

41

00:01:26,870 --> 00:01:24,880

that we don't quite understand and we're

42

00:01:28,149 --> 00:01:26,880

going to take the next day or two and

43

00:01:30,070 --> 00:01:28,159

and sort through that probably do a

44

00:01:31,749 --> 00:01:30,080

little bit of troubleshooting on orbit

45

00:01:33,429 --> 00:01:31,759

and the team will be working through the

46

00:01:34,789 --> 00:01:33,439

fault tree and and

47

00:01:36,870 --> 00:01:34,799

and trying to determine what kind of

48

00:01:38,870 --> 00:01:36,880

things that that we could do on orbit

49

00:01:40,149 --> 00:01:38,880

and and here on the ground to try to try

50

00:01:41,990 --> 00:01:40,159

to get a better understanding of what's

51
00:01:43,590 --> 00:01:42,000
going on so so that's that's kind of

52
00:01:46,550 --> 00:01:43,600
what i would term the immediate future

53
00:01:48,389 --> 00:01:46,560
as far as as where we're going to go

54
00:01:50,310 --> 00:01:48,399
past this do we need to go do this eva

55
00:01:52,630 --> 00:01:50,320
does it need to be done quickly

56
00:01:54,710 --> 00:01:52,640
that's just the the type of thing that

57
00:01:56,550 --> 00:01:54,720
through our normal uh processes here on

58
00:01:58,149 --> 00:01:56,560
the ground we'll we'll take the set of

59
00:02:00,230 --> 00:01:58,159
requirements that we have remaining and

60
00:02:01,590 --> 00:02:00,240
go try to try to bounce them up against

61
00:02:03,590 --> 00:02:01,600
the other things we need to do over the

62
00:02:05,590 --> 00:02:03,600
next several weeks and months and and

63
00:02:08,710 --> 00:02:05,600

we'll find the right time to to go do

64

00:02:11,190 --> 00:02:08,720

this eva once once we understand exactly

65

00:02:12,949 --> 00:02:11,200

what happened on orbit today and and how

66

00:02:14,309 --> 00:02:12,959

we can ensure that that it won't happen

67

00:02:17,270 --> 00:02:14,319

again so

68

00:02:19,670 --> 00:02:17,280

from that standpoint we have no

69

00:02:21,270 --> 00:02:19,680

no time clock that we're working to

70

00:02:22,869 --> 00:02:21,280

and and certainly when you have an issue

71

00:02:24,150 --> 00:02:22,879

like this you want to make sure that

72

00:02:26,070 --> 00:02:24,160

that you

73

00:02:28,309 --> 00:02:26,080

turn over every rock and and make sure

74

00:02:30,949 --> 00:02:28,319

that that that we've dealt with the with

75

00:02:32,550 --> 00:02:30,959

the issue and uh completely so

76

00:02:34,470 --> 00:02:32,560

with that that's uh that's kind of where

77

00:02:35,990 --> 00:02:34,480

we're at from a program standpoint i'll

78

00:02:37,830 --> 00:02:36,000

i'll hand it over to david and he can

79

00:02:39,830 --> 00:02:37,840

talk to you about the specifics of what

80

00:02:41,830 --> 00:02:39,840

happened today

81

00:02:44,229 --> 00:02:41,840

okay yeah what i'm going to do is i'll

82

00:02:45,750 --> 00:02:44,239

talk a bit at a higher level of

83

00:02:48,150 --> 00:02:45,760

kind of the timeline the flow of events

84

00:02:49,990 --> 00:02:48,160

today what we did accomplish a little

85

00:02:51,830 --> 00:02:50,000

bit of what happened and why we came in

86

00:02:54,790 --> 00:02:51,840

and i'll ask karina to fill in any

87

00:02:57,030 --> 00:02:54,800

specific details

88

00:02:58,710 --> 00:02:57,040

the crew was ready for the eva today as

89
00:02:59,910 --> 00:02:58,720
kenny mentioned we had a good plan going

90
00:03:00,710 --> 00:02:59,920
into it

91
00:03:02,550 --> 00:03:00,720
and

92
00:03:03,990 --> 00:03:02,560
in fact they started off about 18

93
00:03:05,270 --> 00:03:04,000
minutes ahead of the timeline getting

94
00:03:07,350 --> 00:03:05,280
out the door

95
00:03:09,030 --> 00:03:07,360
we knocked off the first two tasks that

96
00:03:11,190 --> 00:03:09,040
were planned for the eva

97
00:03:12,470 --> 00:03:11,200
and at one point chris was about 40

98
00:03:14,710 --> 00:03:12,480
minutes ahead

99
00:03:16,790 --> 00:03:14,720
of the timeline and it was about at that

100
00:03:19,670 --> 00:03:16,800
point where

101
00:03:21,190 --> 00:03:19,680
luca noted to us that he had a co2

102
00:03:22,790 --> 00:03:21,200
sensor

103
00:03:25,190 --> 00:03:22,800
in his system that that was bad he

104
00:03:27,190 --> 00:03:25,200
wasn't able to read a co2 anymore so we

105
00:03:29,270 --> 00:03:27,200
had some discussion on the ground

106
00:03:32,309 --> 00:03:29,280
and we have rules in place for how we

107
00:03:34,470 --> 00:03:32,319
handle uh bad co2 sensors and we can

108
00:03:36,710 --> 00:03:34,480
monitor the the co2 level

109
00:03:38,789 --> 00:03:36,720
of the the crew to keep them safe and

110
00:03:39,910 --> 00:03:38,799
just rely on them really to report any

111
00:03:42,869 --> 00:03:39,920
uh

112
00:03:44,149 --> 00:03:42,879
symptoms of co2 and we progressed from

113
00:03:46,630 --> 00:03:44,159

there

114

00:03:48,550 --> 00:03:46,640

and had the crew at that point

115

00:03:51,350 --> 00:03:48,560

uh luca had already finished uh the

116

00:03:53,430 --> 00:03:51,360

first task of the day which was the uh

117

00:03:55,589 --> 00:03:53,440

grapple fixture on the fgb making the

118

00:03:58,309 --> 00:03:55,599

final data connections we we routed the

119

00:04:00,630 --> 00:03:58,319

cable you recall on the last dva and we

120

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

just made the final connections to get

121

00:04:03,990 --> 00:04:02,080

that in good shape

122

00:04:06,789 --> 00:04:04,000

and he was starting into the

123

00:04:08,470 --> 00:04:06,799

mlm ethernet cable hookup and then he

124

00:04:10,949 --> 00:04:08,480

was going to route it and it was at that

125

00:04:12,470 --> 00:04:10,959

point as i mentioned co2 cents are bad

126
00:04:13,990 --> 00:04:12,480
we talked about it a bit and then about

127
00:04:15,110 --> 00:04:14,000
six seven minutes later he started

128
00:04:16,629 --> 00:04:15,120
reporting

129
00:04:20,789 --> 00:04:16,639
uh water

130
00:04:22,550 --> 00:04:20,799
his head

131
00:04:24,629 --> 00:04:22,560
specifically kind of a

132
00:04:26,230 --> 00:04:24,639
gush or whatever just kind of a bubble

133
00:04:27,430 --> 00:04:26,240
in the back of his head

134
00:04:29,270 --> 00:04:27,440
and

135
00:04:31,670 --> 00:04:29,280
we uh we talked about it with him tried

136
00:04:33,670 --> 00:04:31,680
to get a sense of uh did it just appear

137
00:04:35,110 --> 00:04:33,680
has it been increasing and and the sense

138
00:04:37,350 --> 00:04:35,120

we got at the time

139

00:04:38,870 --> 00:04:37,360

was that and and as well from his

140

00:04:40,790 --> 00:04:38,880

perspective that

141

00:04:42,870 --> 00:04:40,800

uh things were okay stabilized he just

142

00:04:44,230 --> 00:04:42,880

had this water accumulation in the back

143

00:04:47,189 --> 00:04:44,240

of his head

144

00:04:50,230 --> 00:04:47,199

and we drew the conclusion that the co2

145

00:04:52,070 --> 00:04:50,240

sensor bad uh was probably related to

146

00:04:54,550 --> 00:04:52,080

the fact that the water accumulation we

147

00:04:56,710 --> 00:04:54,560

have a history of you know co2 sensors

148

00:04:58,950 --> 00:04:56,720

getting wet and it kind of makes them go

149

00:05:00,230 --> 00:04:58,960

bad anyways we started to talk about

150

00:05:03,030 --> 00:05:00,240

next steps

151
00:05:05,430 --> 00:05:03,040
and karina suggested that we hold right

152
00:05:07,590 --> 00:05:05,440
there and talk through any implications

153
00:05:08,550 --> 00:05:07,600
to the suit and whether we are happy

154
00:05:09,430 --> 00:05:08,560
with

155
00:05:11,430 --> 00:05:09,440
luca

156
00:05:13,909 --> 00:05:11,440
continuing with his tasks

157
00:05:15,909 --> 00:05:13,919
and not long after that

158
00:05:17,830 --> 00:05:15,919
chris chris was finished with his task

159
00:05:20,629 --> 00:05:17,840
which was the z1 wipe

160
00:05:23,350 --> 00:05:20,639
y cable jumper install

161
00:05:25,029 --> 00:05:23,360
part two we did part one of the last eva

162
00:05:27,029 --> 00:05:25,039
he finished it he was coming over to

163
00:05:28,629 --> 00:05:27,039

look at luca and kind of assess the

164

00:05:30,950 --> 00:05:28,639

situation he said hey there's there's a

165

00:05:33,350 --> 00:05:30,960

larger accumulation of water now around

166

00:05:35,430 --> 00:05:33,360

lucca and he started reporting that

167

00:05:37,350 --> 00:05:35,440

it was coming around his ears

168

00:05:39,110 --> 00:05:37,360

and getting on the front of his face and

169

00:05:40,950 --> 00:05:39,120

it was at that point that uh you know

170

00:05:42,950 --> 00:05:40,960

per the rules and guidelines we have we

171

00:05:45,029 --> 00:05:42,960

judge that it was in the best interest

172

00:05:47,189 --> 00:05:45,039

of the crew and the mission of the the

173

00:05:49,350 --> 00:05:47,199

task that day that we would call

174

00:05:51,350 --> 00:05:49,360

terminate the eva

175

00:05:54,790 --> 00:05:51,360

we just weren't gonna it wasn't

176

00:05:56,950 --> 00:05:54,800

uh prudent to try to continue tasks

177

00:05:58,710 --> 00:05:56,960

with uh water accumulating around his

178

00:05:59,990 --> 00:05:58,720

ears and and the discomfort that he had

179

00:06:02,469 --> 00:06:00,000

at that point

180

00:06:03,670 --> 00:06:02,479

and so we directed luca to head back to

181

00:06:05,670 --> 00:06:03,680

the airlock

182

00:06:08,390 --> 00:06:05,680

we told chris in the situation we have

183

00:06:10,790 --> 00:06:08,400

here to save the uh the bags that he had

184

00:06:12,150 --> 00:06:10,800

at that point and then follow luca back

185

00:06:14,230 --> 00:06:12,160

to the airlock

186

00:06:15,189 --> 00:06:14,240

uh luca ended up going in the airlock

187

00:06:19,189 --> 00:06:15,199

first

188

00:06:20,950 --> 00:06:19,199

one bag back in

189

00:06:22,550 --> 00:06:20,960

with these large v guides that was one

190

00:06:23,749 --> 00:06:22,560

of the tasks that he was just about to

191

00:06:25,189 --> 00:06:23,759

go work on

192

00:06:27,029 --> 00:06:25,199

he had those in the bag he brought those

193

00:06:28,070 --> 00:06:27,039

back inside

194

00:06:29,830 --> 00:06:28,080

and

195

00:06:32,150 --> 00:06:29,840

at about

196

00:06:34,629 --> 00:06:32,160

1305 let's see no

197

00:06:37,670 --> 00:06:34,639

1326 gmt we had a both crew in the

198

00:06:38,629 --> 00:06:37,680

airlock hatches closed and we at that

199

00:06:40,309 --> 00:06:38,639

point

200

00:06:42,150 --> 00:06:40,319

started getting reports from from both

201
00:06:44,469 --> 00:06:42,160
chris and luca that the amount of water

202
00:06:45,590 --> 00:06:44,479
accumulating in in his helmet was was

203
00:06:47,270 --> 00:06:45,600
increasing

204
00:06:50,070 --> 00:06:47,280
uh so we went through what we call an

205
00:06:51,670 --> 00:06:50,080
expedited suit doffing procedure which

206
00:06:54,070 --> 00:06:51,680
skips some of the

207
00:06:55,510 --> 00:06:54,080
while more methodical steps of of

208
00:06:56,870 --> 00:06:55,520
getting the crew

209
00:06:57,830 --> 00:06:56,880
configured

210
00:06:59,270 --> 00:06:57,840
for

211
00:07:01,350 --> 00:06:59,280
getting out of their suits and doffing

212
00:07:03,110 --> 00:07:01,360
their suits it hits hits to cuts to the

213
00:07:04,629 --> 00:07:03,120

chase and gets them out of their suits

214

00:07:06,230 --> 00:07:04,639

quicker and especially in this case

215

00:07:09,189 --> 00:07:06,240

getting the helmet off

216

00:07:11,749 --> 00:07:09,199

so we we took those steps and uh

217

00:07:14,230 --> 00:07:11,759

about 10 12 minutes later we got uh luca

218

00:07:16,150 --> 00:07:14,240

had his helmet and glove off gloves off

219

00:07:17,749 --> 00:07:16,160

and uh at that point we we started to

220

00:07:19,510 --> 00:07:17,759

get assessment of how much water we were

221

00:07:21,909 --> 00:07:19,520

talking about in there and the reports

222

00:07:25,270 --> 00:07:21,919

we got was anywhere between a liter and

223

00:07:27,110 --> 00:07:25,280

1.5 liters of water had accumulated in

224

00:07:29,189 --> 00:07:27,120

the suit itself not just in the helmet

225

00:07:31,589 --> 00:07:29,199

but all around the suit

226

00:07:33,830 --> 00:07:31,599

so as kenny mentioned there's been a lot

227

00:07:35,510 --> 00:07:33,840

of discussion with both the crew and all

228

00:07:37,510 --> 00:07:35,520

the engineering teams to try to

229

00:07:39,990 --> 00:07:37,520

determine what what exactly is the the

230

00:07:41,909 --> 00:07:40,000

source of the water

231

00:07:43,749 --> 00:07:41,919

what happened the suits are

232

00:07:45,430 --> 00:07:43,759

by all means the rest of the the suits

233

00:07:46,390 --> 00:07:45,440

are in good shape the crew is in good

234

00:07:47,189 --> 00:07:46,400

shape

235

00:07:48,309 --> 00:07:47,199

um

236

00:07:49,909 --> 00:07:48,319

they're

237

00:07:51,510 --> 00:07:49,919

of course interested as we are to find

238

00:07:53,189 --> 00:07:51,520

out what what happened and what caused

239

00:07:55,029 --> 00:07:53,199

the eva to

240

00:07:57,430 --> 00:07:55,039

terminate a little early we we did get a

241

00:07:58,950 --> 00:07:57,440

total of an hour and 32 minutes of pet

242

00:08:00,790 --> 00:07:58,960

time so

243

00:08:02,390 --> 00:08:00,800

that qualifies to give them their eva

244

00:08:04,309 --> 00:08:02,400

wings at least on this eva but it's

245

00:08:06,309 --> 00:08:04,319

their second eva

246

00:08:09,350 --> 00:08:06,319

so those are those are the main parts of

247

00:08:12,230 --> 00:08:09,360

the timeline how things flowed and and

248

00:08:13,430 --> 00:08:12,240

how the events transpired so i'll turn

249

00:08:15,189 --> 00:08:13,440

over to karina if you have any other

250

00:08:17,350 --> 00:08:15,199

details you want to add

251

00:08:19,510 --> 00:08:17,360

i think you covered the timeline pretty

252

00:08:20,550 --> 00:08:19,520

well david um i just want to reiterate

253

00:08:22,469 --> 00:08:20,560

that

254

00:08:24,309 --> 00:08:22,479

you know it's a good day today the crew

255

00:08:26,550 --> 00:08:24,319

is inside and safe and they're in good

256

00:08:28,710 --> 00:08:26,560

spirits we just spoke with them to ask

257

00:08:30,629 --> 00:08:28,720

them some more questions about the suit

258

00:08:32,949 --> 00:08:30,639

and what they saw

259

00:08:34,949 --> 00:08:32,959

and that will be excellent information

260

00:08:36,790 --> 00:08:34,959

for our engineering teams on the ground

261

00:08:39,350 --> 00:08:36,800

trying to determine what the source was

262

00:08:41,029 --> 00:08:39,360

of this water

263

00:08:43,509 --> 00:08:41,039

you know space walks are

264

00:08:45,190 --> 00:08:43,519

really a key part of the human

265

00:08:47,670 --> 00:08:45,200

space flight program

266

00:08:50,870 --> 00:08:47,680

and they can do some spectacular things

267

00:08:51,910 --> 00:08:50,880

we've had some fantastic victories with

268

00:08:53,590 --> 00:08:51,920

nothing less than building the

269

00:08:55,670 --> 00:08:53,600

international space station but of

270

00:08:56,870 --> 00:08:55,680

course all space flight does have risks

271

00:08:59,590 --> 00:08:56,880

and

272

00:09:01,750 --> 00:08:59,600

so does spacewalks

273

00:09:03,350 --> 00:09:01,760

the team today i have a fantastic team

274

00:09:05,110 --> 00:09:03,360

that was supporting me

275

00:09:08,070 --> 00:09:05,120

on the ground as well as the fantastic

276
00:09:10,550 --> 00:09:08,080
team on orbit and everybody performed

277
00:09:12,389 --> 00:09:10,560
very very well and so we made the

278
00:09:15,190 --> 00:09:12,399
decision very quickly to terminate the

279
00:09:18,389 --> 00:09:15,200
eva when we understood the situation

280
00:09:20,710 --> 00:09:18,399
with the water in lucca's helmet

281
00:09:23,110 --> 00:09:20,720
and i just want to say we simulate these

282
00:09:25,350 --> 00:09:23,120
types of things on the ground and that's

283
00:09:27,269 --> 00:09:25,360
so that we can perform under pressure

284
00:09:30,949 --> 00:09:27,279
the kind of way that we did today and

285
00:09:34,310 --> 00:09:33,190
there's a couple of numbers i can

286
00:09:36,389 --> 00:09:34,320
hand out that i think folks will

287
00:09:38,949 --> 00:09:36,399
probably be interested in

288
00:09:40,070 --> 00:09:38,959

sources of water in the suit

289

00:09:43,110 --> 00:09:40,080

of course one of the first things we

290

00:09:45,350 --> 00:09:43,120

often think about is the drink bag

291

00:09:46,550 --> 00:09:45,360

crew is outside for six and a half hours

292

00:09:48,630 --> 00:09:46,560

and so it's very important that they

293

00:09:51,190 --> 00:09:48,640

have a drink bag so that they can remain

294

00:09:52,630 --> 00:09:51,200

hydrated during what can be some pretty

295

00:09:55,350 --> 00:09:52,640

hard work

296

00:09:56,310 --> 00:09:55,360

our drink bag holds 32 ounces

297

00:09:57,990 --> 00:09:56,320

and

298

00:09:59,990 --> 00:09:58,000

obviously another source of moisture in

299

00:10:01,670 --> 00:10:00,000

the suit can be the crew sweating when

300

00:10:03,509 --> 00:10:01,680

they're working hard but that's not the

301
00:10:05,190 --> 00:10:03,519
type of that obviously is not going to

302
00:10:06,630 --> 00:10:05,200
create the kind of

303
00:10:08,150 --> 00:10:06,640
quantity of water that the crew was

304
00:10:10,470 --> 00:10:08,160
reporting

305
00:10:12,870 --> 00:10:10,480
and then in our cooling system we have

306
00:10:14,630 --> 00:10:12,880
about a gallon of water between

307
00:10:18,069 --> 00:10:14,640
the liquid cooling and ventilation

308
00:10:20,470 --> 00:10:18,079
garment and the water tanks that provide

309
00:10:25,670 --> 00:10:20,480
water to our sublimator which helps then

310
00:10:30,069 --> 00:10:27,269
and the liquid cooling and ventilation

311
00:10:31,829 --> 00:10:30,079
garment holds about an eighth of that

312
00:10:33,910 --> 00:10:31,839
volume so those were the things that we

313
00:10:37,509 --> 00:10:33,920

were thinking about as possible sources

314

00:10:39,910 --> 00:10:37,519

during the eva from words that the crew

315

00:10:42,069 --> 00:10:39,920

reported we think it's unlikely that it

316

00:10:45,269 --> 00:10:42,079

was the drink bag today

317

00:10:47,590 --> 00:10:45,279

and i would say that i don't know yet uh

318

00:10:49,269 --> 00:10:47,600

the exact source of the water today so

319

00:10:50,949 --> 00:10:49,279

that's part of the investigation that's

320

00:10:53,269 --> 00:10:50,959

going to be going forward

321

00:10:54,389 --> 00:10:53,279

and that's about all i have

322

00:10:55,670 --> 00:10:54,399

okay we're going to start off with

323

00:10:57,190 --> 00:10:55,680

questions here in houston we'll go to

324

00:10:58,470 --> 00:10:57,200

the phone lines let's start down here

325

00:11:00,790 --> 00:10:58,480

with uh gina

326

00:11:03,190 --> 00:11:00,800

uh genus cincheri abc news i've got a

327

00:11:05,829 --> 00:11:03,200

couple of questions um was there any

328

00:11:07,750 --> 00:11:05,839

danger of him drowning in his helmet was

329

00:11:10,710 --> 00:11:07,760

that a concern for you at all have you

330

00:11:12,230 --> 00:11:10,720

ever seen a problem like this before

331

00:11:14,389 --> 00:11:12,240

i would say no we have not seen a

332

00:11:16,630 --> 00:11:14,399

problem like this before with this type

333

00:11:18,389 --> 00:11:16,640

of quantity of water

334

00:11:20,069 --> 00:11:18,399

concerns with water in the suit

335

00:11:22,310 --> 00:11:20,079

especially free water

336

00:11:23,990 --> 00:11:22,320

one of the things that we worry about is

337

00:11:25,750 --> 00:11:24,000

the anti-fog on the

338

00:11:27,910 --> 00:11:25,760

helmet which has a

339

00:11:29,509 --> 00:11:27,920

soapy material now often divers for

340

00:11:31,350 --> 00:11:29,519

instance may put a soapy material inside

341

00:11:32,870 --> 00:11:31,360

their

342

00:11:34,790 --> 00:11:32,880

goggles to

343

00:11:37,110 --> 00:11:34,800

keep them from

344

00:11:38,470 --> 00:11:37,120

from being fogged up and

345

00:11:41,030 --> 00:11:38,480

right and so

346

00:11:43,110 --> 00:11:41,040

we've seen water small amounts of water

347

00:11:44,470 --> 00:11:43,120

get in that and then get in the crew's

348

00:11:46,069 --> 00:11:44,480

eyes and that can be very painful so

349

00:11:47,990 --> 00:11:46,079

that was obviously one concern that

350

00:11:49,910 --> 00:11:48,000

popped up ahead

351
00:11:51,190 --> 00:11:49,920
hearing and communication and we did see

352
00:11:53,990 --> 00:11:51,200
that today

353
00:11:56,310 --> 00:11:54,000
that enough water was in lucca's calm

354
00:11:58,069 --> 00:11:56,320
cap that it blocked his ability to hear

355
00:11:59,350 --> 00:11:58,079
towards the end as he was coming into

356
00:12:02,710 --> 00:11:59,360
the airlock

357
00:12:04,790 --> 00:12:02,720
and yes if there's enough water and

358
00:12:05,509 --> 00:12:04,800
the interesting thing in zero gravity

359
00:12:07,350 --> 00:12:05,519
that

360
00:12:09,350 --> 00:12:07,360
folks on the ground may not be aware of

361
00:12:10,629 --> 00:12:09,360
is you know the water pools

362
00:12:13,030 --> 00:12:10,639
in a big glob

363
00:12:14,470 --> 00:12:13,040

and so it doesn't necessarily go down

364

00:12:17,030 --> 00:12:14,480

into the suit and there's not a lot of

365

00:12:19,430 --> 00:12:17,040

absorptive material in the helmet so he

366

00:12:21,269 --> 00:12:19,440

he certainly had that risk today and

367

00:12:22,629 --> 00:12:21,279

that's why we took it so seriously and

368

00:12:24,310 --> 00:12:22,639

terminated the eva as soon as we

369

00:12:25,670 --> 00:12:24,320

understood that we were dealing with

370

00:12:28,470 --> 00:12:25,680

quantities of water and not just

371

00:12:31,910 --> 00:12:30,310

how has he recovered what are the after

372

00:12:33,990 --> 00:12:31,920

effects what have you seen so far that

373

00:12:36,470 --> 00:12:34,000

you're allowed to share with us luke is

374

00:12:38,150 --> 00:12:36,480

doing great he's he's smiling and happy

375

00:12:40,470 --> 00:12:38,160

and he's

376

00:12:42,389 --> 00:12:40,480

all the crew is looking at the suits and

377

00:12:44,069 --> 00:12:42,399

reporting information anything that they

378

00:12:45,750 --> 00:12:44,079

can to help us

379

00:12:47,590 --> 00:12:45,760

investigate the source

380

00:12:49,670 --> 00:12:47,600

yeah i would say grace under pressure

381

00:12:51,670 --> 00:12:49,680

because you know as we we learned

382

00:12:53,269 --> 00:12:51,680

as he progressed back toward the airlock

383

00:12:54,710 --> 00:12:53,279

you know the amount of water that he was

384

00:12:56,470 --> 00:12:54,720

reporting started to increase and

385

00:12:59,030 --> 00:12:56,480

increase and you can imagine

386

00:13:00,629 --> 00:12:59,040

you know you're in a fish bowl

387

00:13:02,710 --> 00:13:00,639

so go stick your head in the fishbowl

388

00:13:04,629 --> 00:13:02,720

and try to walk around and that's not

389

00:13:07,350 --> 00:13:04,639

anything that you you take lightly and

390

00:13:09,110 --> 00:13:07,360

certainly eva is dangerous already

391

00:13:11,509 --> 00:13:09,120

and he did a great job

392

00:13:14,949 --> 00:13:11,519

of just keeping calm and cool and

393

00:13:19,269 --> 00:13:16,949

okay well

394

00:13:21,750 --> 00:13:19,279

robert perrman with collectface.com

395

00:13:23,910 --> 00:13:21,760

um david you mentioned that there was an

396

00:13:26,069 --> 00:13:23,920

expedited suit doffing but from the

397

00:13:27,750 --> 00:13:26,079

point that i guess the first call was

398

00:13:29,430 --> 00:13:27,760

that you were

399

00:13:31,430 --> 00:13:29,440

ending the eva to the point that they

400

00:13:32,710 --> 00:13:31,440

reached the airlock was about 25 minutes

401
00:13:35,590 --> 00:13:32,720
and then it took another 10 minutes to

402
00:13:37,190 --> 00:13:35,600
repress if luca had been in a more

403
00:13:39,590 --> 00:13:37,200
serious situation with more water

404
00:13:42,150 --> 00:13:39,600
flowing in was that the fastest that you

405
00:13:43,350 --> 00:13:42,160
could get his helmet off or was there

406
00:13:45,910 --> 00:13:43,360
something else that you could have done

407
00:13:48,949 --> 00:13:45,920
to purge the water from the helmet

408
00:13:50,389 --> 00:13:48,959
before we press or before literally

409
00:13:52,790 --> 00:13:50,399
taking the helmet off

410
00:13:54,550 --> 00:13:52,800
yeah good question yeah we actually have

411
00:14:00,629 --> 00:13:54,560
uh

412
00:14:02,710 --> 00:14:00,639
could even ratchet up if we needed to

413
00:14:04,710 --> 00:14:02,720

the expedition

414

00:14:06,389 --> 00:14:04,720

expeditious

415

00:14:08,710 --> 00:14:06,399

traverse back to the airlock we call it

416

00:14:10,710 --> 00:14:08,720

an abort eva scenario

417

00:14:13,509 --> 00:14:10,720

where we think at that moment

418

00:14:15,269 --> 00:14:13,519

cruz life is is imminently in danger we

419

00:14:16,790 --> 00:14:15,279

did not at the point

420

00:14:18,470 --> 00:14:16,800

sense that that was the case we took

421

00:14:20,790 --> 00:14:18,480

action at the appropriate time so that

422

00:14:22,389 --> 00:14:20,800

that was not going to be the case

423

00:14:25,030 --> 00:14:22,399

but we could have

424

00:14:26,310 --> 00:14:25,040

expedited getting back to the airlock

425

00:14:27,910 --> 00:14:26,320

and then once in the airlock do an

426

00:14:29,990 --> 00:14:27,920

emergency repress

427

00:14:32,310 --> 00:14:30,000

karina mayo can share more details about

428

00:14:34,790 --> 00:14:32,320

what's involved in emergency repress

429

00:14:36,389 --> 00:14:34,800

it cuts a lot more corners and

430

00:14:38,949 --> 00:14:36,399

now there's a lot more

431

00:14:41,110 --> 00:14:38,959

less system reconfig involved and you

432

00:14:42,870 --> 00:14:41,120

only do that if you feel like a crew

433

00:14:46,870 --> 00:14:42,880

member's life is absolutely in danger at

434

00:14:52,389 --> 00:14:49,509

um how do you troubleshoot this can you

435

00:14:54,470 --> 00:14:52,399

um do you have to put back this suit

436

00:14:56,710 --> 00:14:54,480

together and prepare it for another walk

437

00:14:57,990 --> 00:14:56,720

and have it run empty or how do you

438

00:14:59,670 --> 00:14:58,000

figure out where the water is coming

439

00:15:01,829 --> 00:14:59,680

from yeah it's a that's a great question

440

00:15:02,790 --> 00:15:01,839

what we've started with today throughout

441

00:15:05,110 --> 00:15:02,800

the day

442

00:15:07,110 --> 00:15:05,120

is a detailed discussions with the crew

443

00:15:08,870 --> 00:15:07,120

to get their sense of

444

00:15:10,629 --> 00:15:08,880

where did they see the feel the water

445

00:15:13,430 --> 00:15:10,639

was coming from

446

00:15:15,990 --> 00:15:13,440

how much water and detailed inspections

447

00:15:18,150 --> 00:15:16,000

we the crew has been great about uh

448

00:15:20,389 --> 00:15:18,160

video and photography of the inside of

449

00:15:21,910 --> 00:15:20,399

the suit all aspects of the suit uh to

450

00:15:23,750 --> 00:15:21,920

help the engineers kind of determine

451

00:15:26,389 --> 00:15:23,760

what could be the problem

452

00:15:27,910 --> 00:15:26,399

nothing is jumping out right now

453

00:15:30,310 --> 00:15:27,920

as to what the source is as karina

454

00:15:32,470 --> 00:15:30,320

mentioned you know we originally thought

455

00:15:34,550 --> 00:15:32,480

the easy go for solution is the drink

456

00:15:36,870 --> 00:15:34,560

bag and i think we've pretty much ruled

457

00:15:38,069 --> 00:15:36,880

that out not entirely but that doesn't

458

00:15:40,710 --> 00:15:38,079

seem to be

459

00:15:41,990 --> 00:15:40,720

the the immediate source so uh that's

460

00:15:44,150 --> 00:15:42,000

that's the approach we take the

461

00:15:45,829 --> 00:15:44,160

engineering teams are meeting right now

462

00:15:47,350 --> 00:15:45,839

um to go through the photos that the

463

00:15:49,590 --> 00:15:47,360

crew has taken

464

00:15:53,430 --> 00:15:49,600

and the uh reviewing the uh discussion

465

00:15:55,590 --> 00:15:53,440

we've had with them on space to ground

466

00:15:57,670 --> 00:15:55,600

okay mark

467

00:15:58,710 --> 00:15:57,680

thank you mark mark rowe for aviation

468

00:16:00,870 --> 00:15:58,720

week

469

00:16:04,150 --> 00:16:00,880

um

470

00:16:06,870 --> 00:16:04,160

what does the current situation say

471

00:16:08,870 --> 00:16:06,880

about your ability to respond

472

00:16:10,710 --> 00:16:08,880

rather quickly if you had to to some

473

00:16:11,910 --> 00:16:10,720

other issue like a thermal control

474

00:16:14,790 --> 00:16:11,920

system

475

00:16:16,870 --> 00:16:14,800

problem or something with the power

476

00:16:18,870 --> 00:16:16,880

source outside the station can you can

477

00:16:20,790 --> 00:16:18,880

you still do it while you investigate

478

00:16:22,389 --> 00:16:20,800

when you hold that up or is that sort of

479

00:16:24,629 --> 00:16:22,399

a question that doesn't have an answer

480

00:16:26,470 --> 00:16:24,639

yet

481

00:16:28,230 --> 00:16:26,480

i know i can i can try a little bit and

482

00:16:29,670 --> 00:16:28,240

i'll let kenny answer

483

00:16:32,069 --> 00:16:29,680

the uh

484

00:16:34,550 --> 00:16:32,079

there are you know if if and a lot of it

485

00:16:35,990 --> 00:16:34,560

depends on what we determine

486

00:16:37,590 --> 00:16:36,000

while the engineers go through the the

487

00:16:39,430 --> 00:16:37,600

situation tonight and

488

00:16:41,269 --> 00:16:39,440

what the nature of this problem is is it

489

00:16:43,509 --> 00:16:41,279

a pervasive problem that we need to

490

00:16:45,350 --> 00:16:43,519

worry about all the emus or not

491

00:16:47,030 --> 00:16:45,360

if it really is something very specific

492

00:16:48,150 --> 00:16:47,040

to this suit

493

00:16:50,550 --> 00:16:48,160

we have

494

00:16:53,030 --> 00:16:50,560

procedures for the crew to resize

495

00:16:55,110 --> 00:16:53,040

and getting some different uh upper

496

00:16:56,790 --> 00:16:55,120

torsos and things like that so that we

497

00:16:58,310 --> 00:16:56,800

could go eva if we needed to for an

498

00:17:00,629 --> 00:16:58,320

emergency but it really is going to

499

00:17:01,749 --> 00:17:00,639

depend on what they learn and if they

500

00:17:04,230 --> 00:17:01,759

can

501
00:17:06,069 --> 00:17:04,240
pinpoint this as a unique suit issue or

502
00:17:06,900 --> 00:17:06,079
not

503
00:17:08,470 --> 00:17:06,910
i think

504
00:17:11,029 --> 00:17:08,480
[Applause]

505
00:17:13,350 --> 00:17:11,039
it was i mean we have redundancy suits

506
00:17:15,270 --> 00:17:13,360
on board they may not be the exact size

507
00:17:17,909 --> 00:17:15,280
but we have ways to to work around that

508
00:17:20,150 --> 00:17:17,919
and have worked around it in the past so

509
00:17:22,390 --> 00:17:20,160
we would be in a position to be able to

510
00:17:24,549 --> 00:17:22,400
respond from a hardware standpoint and

511
00:17:26,710 --> 00:17:24,559
being able to go out i think it becomes

512
00:17:28,470 --> 00:17:26,720
what do we know about this failure

513
00:17:30,630 --> 00:17:28,480

you know how stable are we with with

514

00:17:33,190 --> 00:17:30,640

whatever is going on outside

515

00:17:35,669 --> 00:17:33,200

sometimes you know we'll lose a loop and

516

00:17:37,590 --> 00:17:35,679

that'll take us down to the point where

517

00:17:39,110 --> 00:17:37,600

where we're you know single or zero

518

00:17:41,110 --> 00:17:39,120

fault tolerant on some systems and we

519

00:17:43,350 --> 00:17:41,120

want to get out sooner rather than later

520

00:17:44,789 --> 00:17:43,360

but we would trade that risk against you

521

00:17:46,310 --> 00:17:44,799

know what we know and don't know about

522

00:17:48,549 --> 00:17:46,320

this particular failure let's say if it

523

00:17:50,310 --> 00:17:48,559

were to happen tonight or tomorrow

524

00:17:52,150 --> 00:17:50,320

we clearly would want to

525

00:17:54,950 --> 00:17:52,160

to balance that risk to the best we can

526

00:17:56,230 --> 00:17:54,960

and that's uh and that's what we do

527

00:17:58,549 --> 00:17:56,240

okay one more down here and then we'll

528

00:18:01,669 --> 00:17:58,559

go to the phone lines uh mr todd what

529

00:18:03,909 --> 00:18:01,679

did you learn from this today

530

00:18:05,830 --> 00:18:03,919

well um

531

00:18:07,909 --> 00:18:05,840

what i learned from from the standpoint

532

00:18:09,830 --> 00:18:07,919

of the ops team was that those guys are

533

00:18:11,990 --> 00:18:09,840

ready to go you know if you could have

534

00:18:13,990 --> 00:18:12,000

heard the back traffic here and as they

535

00:18:16,070 --> 00:18:14,000

discussed you know what the situation

536

00:18:18,789 --> 00:18:16,080

was with the crew do we you know there

537

00:18:19,990 --> 00:18:18,799

wasn't any doubt as to as to how to how

538

00:18:22,710 --> 00:18:20,000

to get this done and get it done

539

00:18:25,190 --> 00:18:22,720

successfully it was uh really uh all the

540

00:18:27,750 --> 00:18:25,200

training clearly was was paid off and as

541

00:18:30,710 --> 00:18:27,760

far as as far as the crew goes uh you

542

00:18:32,950 --> 00:18:30,720

know the crew was top-notch experts and

543

00:18:34,630 --> 00:18:32,960

and they were really um you know they

544

00:18:36,630 --> 00:18:34,640

were they were part of the team and they

545

00:18:38,870 --> 00:18:36,640

were helping to work through this and

546

00:18:41,350 --> 00:18:38,880

and uh at the end of the day uh like i

547

00:18:44,230 --> 00:18:41,360

said we we accomplished objective one

548

00:18:45,750 --> 00:18:44,240

and uh and i think it uh it brought into

549

00:18:48,150 --> 00:18:45,760

mind for all of us that's really what

550

00:18:50,789 --> 00:18:48,160

this is all about is to uh is to go do

551
00:18:52,950 --> 00:18:50,799
this risky operation the best way we can

552
00:18:56,070 --> 00:18:52,960
to ensure that we we protect the main

553
00:18:57,190 --> 00:18:56,080
objective and uh and today uh you know

554
00:18:59,270 --> 00:18:57,200
um

555
00:19:01,510 --> 00:18:59,280
we we have to do eva's ebas are part of

556
00:19:03,270 --> 00:19:01,520
this business and i think what at least

557
00:19:05,830 --> 00:19:03,280
i walked away from this today is saying

558
00:19:07,990 --> 00:19:05,840
that indeed that when we have that day

559
00:19:09,750 --> 00:19:08,000
that we we really wouldn't like to have

560
00:19:11,669 --> 00:19:09,760
the team is really ready to respond and

561
00:19:13,190 --> 00:19:11,679
so so it was a

562
00:19:15,110 --> 00:19:13,200
from that standpoint i don't walk away

563
00:19:16,630 --> 00:19:15,120

with my head down i walk away saying

564

00:19:19,029 --> 00:19:16,640

sometimes you get judged by how you

565

00:19:21,270 --> 00:19:19,039

respond when bad things happen and today

566

00:19:22,789 --> 00:19:21,280

the team did a great job

567

00:19:24,549 --> 00:19:22,799

okay let's go to the phone lines now i'm

568

00:19:25,830 --> 00:19:24,559

going to call on them as we go down the

569

00:19:27,110 --> 00:19:25,840

line just a reminder keep your phone on

570

00:19:31,669 --> 00:19:27,120

mute until i'm calling you let's start

571

00:19:35,990 --> 00:19:32,950

good afternoon charles action

572

00:19:37,669 --> 00:19:36,000

examiner.com uh once back inside the

573

00:19:40,150 --> 00:19:37,679

station luca said that the drinking

574

00:19:42,310 --> 00:19:40,160

water tasted really funny and not like

575

00:19:44,390 --> 00:19:42,320

any normal drinking water would would

576

00:19:46,390 --> 00:19:44,400

that point you more towards the water

577

00:19:48,470 --> 00:19:46,400

coolant or the suit

578

00:19:49,350 --> 00:19:48,480

and then i have a follow-up that has to

579

00:19:51,350 --> 00:19:49,360

do with

580

00:19:53,350 --> 00:19:51,360

if you have a pinhole leak out of

581

00:19:55,110 --> 00:19:53,360

example how would the leak

582

00:19:56,150 --> 00:19:55,120

begin to move up to the suit to the

583

00:19:57,990 --> 00:19:56,160

helmet

584

00:20:00,150 --> 00:19:58,000

because cassidy had radioed to houston

585

00:20:03,590 --> 00:20:00,160

that his pants so that lucas pants were

586

00:20:08,789 --> 00:20:06,070

yeah let me start and karina you can

587

00:20:10,150 --> 00:20:08,799

fill in details

588

00:20:12,390 --> 00:20:10,160

let's see the first question the funny

589

00:20:15,669 --> 00:20:12,400

taste yeah we got we heard the same

590

00:20:18,230 --> 00:20:15,679

reports uh luca reported that

591

00:20:20,230 --> 00:20:18,240

he tried some of the water thinking

592

00:20:21,750 --> 00:20:20,240

initially that it may be the source was

593

00:20:23,430 --> 00:20:21,760

from the drink bag

594

00:20:25,430 --> 00:20:23,440

and it tasted funny

595

00:20:27,029 --> 00:20:25,440

which also pinpoints a couple of things

596

00:20:29,270 --> 00:20:27,039

and karina brought up you know we will

597

00:20:31,430 --> 00:20:29,280

also worry about the uh

598

00:20:33,750 --> 00:20:31,440

the anti-fog that we put on the the

599

00:20:35,430 --> 00:20:33,760

visors that has a it's basically like

600

00:20:37,510 --> 00:20:35,440

dish soap kind of stuff if you've ever

601
00:20:39,510 --> 00:20:37,520
gone diving you put dish soap on there

602
00:20:40,549 --> 00:20:39,520
and that has a weird funny taste also as

603
00:20:42,070 --> 00:20:40,559
you mentioned

604
00:20:43,669 --> 00:20:42,080
uh the

605
00:20:45,909 --> 00:20:43,679
garment the cooling system has a

606
00:20:47,110 --> 00:20:45,919
different taste and it has a iodine that

607
00:20:48,870 --> 00:20:47,120
runs through it

608
00:20:50,390 --> 00:20:48,880
to keep the bacteria from

609
00:20:51,909 --> 00:20:50,400
growing in the in the loop so there's a

610
00:20:54,070 --> 00:20:51,919
number of different sources and again we

611
00:20:56,310 --> 00:20:54,080
use that information

612
00:20:58,310 --> 00:20:56,320
to help us pinpoint where the source of

613
00:21:00,230 --> 00:20:58,320

this leak might be

614

00:21:01,430 --> 00:21:00,240

secondly you said if it's a pinpoint

615

00:21:02,950 --> 00:21:01,440

leak how would

616

00:21:05,590 --> 00:21:02,960

how would it end up

617

00:21:06,870 --> 00:21:05,600

up in the head region versus down in the

618

00:21:08,390 --> 00:21:06,880

the gloves

619

00:21:11,110 --> 00:21:08,400

uh if i understood your question

620

00:21:13,590 --> 00:21:11,120

correctly and why is that so

621

00:21:15,830 --> 00:21:13,600

again things tend in zero g to to kind

622

00:21:17,510 --> 00:21:15,840

of move around and bubble

623

00:21:20,070 --> 00:21:17,520

that certainly is a piece of information

624

00:21:23,029 --> 00:21:20,080

we learned through discussing with luca

625

00:21:24,390 --> 00:21:23,039

about where the water locations were

626

00:21:26,390 --> 00:21:24,400

that

627

00:21:28,710 --> 00:21:26,400

kind of helps us hone in on where

628

00:21:31,750 --> 00:21:28,720

potential areas of concern might be with

629

00:21:32,549 --> 00:21:31,760

the suit so yeah we're looking at all

630

00:21:36,789 --> 00:21:32,559

that

631

00:21:38,549 --> 00:21:36,799

the water started pooling in the back of

632

00:21:42,390 --> 00:21:38,559

his head and seemed to increase from

633

00:21:46,070 --> 00:21:44,149

in a radio call to mission control that

634

00:21:49,270 --> 00:21:46,080

uh his clothes his thermal garment was

635

00:21:51,270 --> 00:21:49,280

dry except for normal sweat

636

00:21:52,870 --> 00:21:51,280

i can answer that

637

00:21:54,950 --> 00:21:52,880

what that helps us to answer is there's

638

00:21:56,630 --> 00:21:54,960

a connector between the suit the hard

639

00:21:58,950 --> 00:21:56,640

upper torso of the suit and the cooling

640

00:22:00,630 --> 00:21:58,960

garment and it helps us to say that

641

00:22:02,470 --> 00:22:00,640

there was not a direct leak at that

642

00:22:04,470 --> 00:22:02,480

location because it's kind of right at

643

00:22:05,750 --> 00:22:04,480

your belly button so that was that was

644

00:22:07,590 --> 00:22:05,760

very helpful information that luca

645

00:22:09,590 --> 00:22:07,600

provided

646

00:22:11,669 --> 00:22:09,600

okay and lastly was this the same suit

647

00:22:13,830 --> 00:22:11,679

used last week

648

00:22:15,510 --> 00:22:13,840

yes it was

649

00:22:18,310 --> 00:22:15,520

okay thank you very much thank you leo

650

00:22:20,630 --> 00:22:18,320

enright with irish television

651
00:22:23,190 --> 00:22:20,640
thanks very much josh i just wondered at

652
00:22:25,110 --> 00:22:23,200
what stage were the europeans involved

653
00:22:27,350 --> 00:22:25,120
in all this this was

654
00:22:30,149 --> 00:22:27,360
uh just about the most serious incident

655
00:22:32,470 --> 00:22:30,159
i can remember uh involving a

656
00:22:36,070 --> 00:22:32,480
spacewalking astronaut at one stage it

657
00:22:38,070 --> 00:22:36,080
seemed uh luca was functionally blind

658
00:22:40,630 --> 00:22:38,080
deaf and mute

659
00:22:42,549 --> 00:22:40,640
for various reasons because of the water

660
00:22:45,110 --> 00:22:42,559
so at what stage were the europeans

661
00:22:47,590 --> 00:22:45,120
consulted in in these emergencies at

662
00:22:49,909 --> 00:22:47,600
what stage are international partners

663
00:22:51,350 --> 00:22:49,919

consulted what is the status of the

664

00:22:52,950 --> 00:22:51,360

international partnership at that

665

00:22:55,430 --> 00:22:52,960

particular point

666

00:23:00,390 --> 00:22:55,440

and uh has he spoken uh with the

667

00:23:05,110 --> 00:23:03,750

i can i can start you can talk

668

00:23:06,870 --> 00:23:05,120

the um

669

00:23:08,950 --> 00:23:06,880

let's see as far as international

670

00:23:11,830 --> 00:23:08,960

partnership yeah of course luca being

671

00:23:16,310 --> 00:23:11,840

the the first italian space walker

672

00:23:20,310 --> 00:23:18,549

the esa team relies on us

673

00:23:22,470 --> 00:23:20,320

here in houston as the eva experts and

674

00:23:24,230 --> 00:23:22,480

to handle these kind of situations and

675

00:23:26,310 --> 00:23:24,240

that's also part of the foundation of

676
00:23:28,149 --> 00:23:26,320
how the station program has been set

677
00:23:29,510 --> 00:23:28,159
with the partnership that we we provide

678
00:23:32,390 --> 00:23:29,520
the integration

679
00:23:35,029 --> 00:23:32,400
and the emergency response

680
00:23:37,029 --> 00:23:35,039
their teams are always plugged in

681
00:23:38,710 --> 00:23:37,039
and their control centers are part of

682
00:23:40,230 --> 00:23:38,720
our entire

683
00:23:42,310 --> 00:23:40,240
global team so they're aware of

684
00:23:44,070 --> 00:23:42,320
everything that's happening and we do

685
00:23:47,190 --> 00:23:44,080
keep them apprised as things are going

686
00:23:49,510 --> 00:23:47,200
along and following the eva once luca

687
00:23:51,190 --> 00:23:49,520
was safely back inside and some of the

688
00:23:52,789 --> 00:23:51,200

conferences that we've had with the uh

689

00:23:54,870 --> 00:23:52,799

the eva team

690

00:23:57,110 --> 00:23:54,880

we have involved the uh

691

00:23:59,110 --> 00:23:57,120

isa representatives here

692

00:24:01,029 --> 00:23:59,120

uh in the discussion so that they're

693

00:24:02,549 --> 00:24:01,039

aware of what we're doing and what

694

00:24:05,830 --> 00:24:02,559

things we're considering and any of the

695

00:24:07,270 --> 00:24:05,840

concerns that we've come up against

696

00:24:08,950 --> 00:24:07,280

and

697

00:24:10,630 --> 00:24:08,960

as far as a

698

00:24:12,630 --> 00:24:10,640

mission from a mission management team

699

00:24:14,870 --> 00:24:12,640

perspective issa is a member of the

700

00:24:17,909 --> 00:24:14,880

mission management team and and

701
00:24:20,630 --> 00:24:17,919
i spoke uh with our local

702
00:24:23,190 --> 00:24:20,640
representative from isa shortly after

703
00:24:24,710 --> 00:24:23,200
the crew got back in

704
00:24:26,470 --> 00:24:24,720
and gave them

705
00:24:28,470 --> 00:24:26,480
the most up-to-date information that we

706
00:24:30,870 --> 00:24:28,480
we had on the incident and what our

707
00:24:32,470 --> 00:24:30,880
forward steps were and as david said as

708
00:24:34,549 --> 00:24:32,480
we worked this afternoon through some of

709
00:24:36,390 --> 00:24:34,559
our technical meetings we've uh

710
00:24:38,549 --> 00:24:36,400
we've had that that same level of

711
00:24:41,350 --> 00:24:38,559
participation at the technical level

712
00:24:42,710 --> 00:24:41,360
with the with members of the esa team so

713
00:24:44,710 --> 00:24:42,720

and they'll continue to be part of that

714

00:24:46,870 --> 00:24:44,720

going forward and

715

00:24:48,630 --> 00:24:46,880

as well uh their their medical teams

716

00:24:50,710 --> 00:24:48,640

will continue to do the same role that

717

00:24:53,510 --> 00:24:50,720

they have been in terms of of uh

718

00:24:56,549 --> 00:24:53,520

maintaining uh uh status on on lucas

719

00:25:02,310 --> 00:24:59,669

and josh if i might ask just a up which

720

00:25:04,310 --> 00:25:02,320

is rather more lighthearted

721

00:25:06,470 --> 00:25:04,320

and that is to do with a sequence where

722

00:25:08,950 --> 00:25:06,480

the astronauts at the early stages of

723

00:25:10,630 --> 00:25:08,960

the emergency paused

724

00:25:13,110 --> 00:25:10,640

and they did what i imagined they

725

00:25:15,909 --> 00:25:13,120

practiced for doing later in the eva

726
00:25:19,669 --> 00:25:15,919
they started taking personal photographs

727
00:25:22,310 --> 00:25:19,679
of luca and he started flipping cards on

728
00:25:23,990 --> 00:25:22,320
his wrist which appeared to be perhaps

729
00:25:26,149 --> 00:25:24,000
family photographs

730
00:25:28,630 --> 00:25:26,159
and some paintings or something of that

731
00:25:30,789 --> 00:25:28,640
sort i wondered if anyone on the panel

732
00:25:32,950 --> 00:25:30,799
knew what was going on there i realized

733
00:25:34,950 --> 00:25:32,960
it wasn't part of the

734
00:25:36,789 --> 00:25:34,960
to do with this story but i'm curious as

735
00:25:39,430 --> 00:25:36,799
to what was going on

736
00:25:41,669 --> 00:25:39,440
i know that is the uh the crew

737
00:25:43,430 --> 00:25:41,679
um gave us a shout out on the ground

738
00:25:45,269 --> 00:25:43,440

they they have on their cuff checklist

739

00:25:46,950 --> 00:25:45,279

some extra pages and and we did send

740

00:25:48,710 --> 00:25:46,960

them up some special

741

00:25:51,269 --> 00:25:48,720

pages that they can tape on there with

742

00:25:52,950 --> 00:25:51,279

details about um the procedures that

743

00:25:55,510 --> 00:25:52,960

they were doing today and they added

744

00:25:57,269 --> 00:25:55,520

some extra pages of their own accord and

745

00:25:59,430 --> 00:25:57,279

said thanks to the team on the ground

746

00:26:02,070 --> 00:25:59,440

for the eva so that was a really nice

747

00:26:03,669 --> 00:26:02,080

gesture on their part

748

00:26:08,950 --> 00:26:03,679

all right thanks leo let's go to miriam

749

00:26:12,789 --> 00:26:11,029

hi um thank you for doing this i

750

00:26:14,710 --> 00:26:12,799

actually am curious

751
00:26:17,269 --> 00:26:14,720
about um

752
00:26:20,470 --> 00:26:17,279
where this kind of incident uh might

753
00:26:23,430 --> 00:26:20,480
rank uh with other spacewalk incidents i

754
00:26:27,190 --> 00:26:23,440
mean it it was the second shortest

755
00:26:29,110 --> 00:26:27,200
um in in history but i'm curious is

756
00:26:31,190 --> 00:26:29,120
is this considered a particularly

757
00:26:33,029 --> 00:26:31,200
dangerous incident because i remember

758
00:26:34,950 --> 00:26:33,039
that same moment where they were taking

759
00:26:36,870 --> 00:26:34,960
photos of each other too so it seemed as

760
00:26:38,549 --> 00:26:36,880
if it was pretty light-hearted uh

761
00:26:40,149 --> 00:26:38,559
through the course of

762
00:26:42,070 --> 00:26:40,159
the um

763
00:26:43,029 --> 00:26:42,080

of the space block but but yeah where

764

00:26:47,110 --> 00:26:43,039

does this

765

00:26:54,070 --> 00:26:47,120

uh

766

00:26:58,950 --> 00:26:56,870

well look at karina

767

00:27:01,510 --> 00:26:58,960

i would say today was certainly a very

768

00:27:03,510 --> 00:27:01,520

serious issue we have had evas be cut

769

00:27:06,390 --> 00:27:03,520

short for other things that

770

00:27:08,470 --> 00:27:06,400

can ultimately be serious as well carbon

771

00:27:10,390 --> 00:27:08,480

dioxide

772

00:27:11,110 --> 00:27:10,400

levels rising being one of them and we

773

00:27:12,630 --> 00:27:11,120

do

774

00:27:14,630 --> 00:27:12,640

watch all those things

775

00:27:17,029 --> 00:27:14,640

closely on the ground so that we

776
00:27:19,029 --> 00:27:17,039
get the crew back inside

777
00:27:22,149 --> 00:27:19,039
before things get

778
00:27:26,070 --> 00:27:22,950
okay

779
00:27:28,549 --> 00:27:26,080
uh let's go to irene klotz with reuters

780
00:27:30,789 --> 00:27:28,559
hi thanks very much um

781
00:27:34,630 --> 00:27:30,799
i have a i have two questions the first

782
00:27:35,510 --> 00:27:34,640
is um just before parmitano reported the

783
00:27:38,390 --> 00:27:35,520
uh

784
00:27:40,870 --> 00:27:38,400
the water issue in his helmet he was

785
00:27:42,950 --> 00:27:40,880
wedged um reported that he was wedged

786
00:27:45,110 --> 00:27:42,960
between modules and maybe that sounded a

787
00:27:47,269 --> 00:27:45,120
lot worse than it is could someone

788
00:27:49,430 --> 00:27:47,279

please explain what was going on and if

789

00:27:51,350 --> 00:27:49,440

it's possible at all that the suit was

790

00:27:54,149 --> 00:27:51,360

damaged at that time

791

00:27:55,269 --> 00:27:54,159

and then the second question is if there

792

00:27:58,590 --> 00:27:55,279

were any

793

00:27:59,990 --> 00:27:58,600

precautionary medical um

794

00:28:02,230 --> 00:28:00,000

[Music]

795

00:28:04,310 --> 00:28:02,240

protocols or anything that he's been

796

00:28:06,389 --> 00:28:04,320

asked to do thanks

797

00:28:08,789 --> 00:28:06,399

i can answer the first question um we

798

00:28:10,710 --> 00:28:08,799

specifically asked him some questions he

799

00:28:13,190 --> 00:28:10,720

was in a work site that's fairly tight

800

00:28:15,269 --> 00:28:13,200

and there is a heat exchanger in that

801
00:28:17,190 --> 00:28:15,279
area as well and we were asking him some

802
00:28:19,269 --> 00:28:17,200
questions about

803
00:28:21,430 --> 00:28:19,279
the reach into that area so that we can

804
00:28:23,190 --> 00:28:21,440
verify that against our training

805
00:28:25,510 --> 00:28:23,200
mock-ups on the ground and make sure we

806
00:28:27,190 --> 00:28:25,520
understand what the

807
00:28:28,549 --> 00:28:27,200
difficulties would be of performing a

808
00:28:29,510 --> 00:28:28,559
heat exchanger

809
00:28:33,590 --> 00:28:29,520
in

810
00:28:36,630 --> 00:28:33,600
that was planned he was not

811
00:28:39,909 --> 00:28:36,640
wedged um in there by accident he was

812
00:28:43,029 --> 00:28:41,909
yeah i'll address the second part as far

813
00:28:44,870 --> 00:28:43,039

as the

814

00:28:47,350 --> 00:28:44,880

the surgeons i what i failed to mention

815

00:28:48,470 --> 00:28:47,360

earlier uh the gentleman from ireland

816

00:28:50,870 --> 00:28:48,480

asked about the international

817

00:28:53,590 --> 00:28:50,880

participation involvement uh we do have

818

00:28:57,110 --> 00:28:53,600

resident here just for this set of evas

819

00:28:59,909 --> 00:28:57,120

uh some of the surgeon team from esa

820

00:29:01,430 --> 00:28:59,919

and so after the first eva as well as

821

00:29:04,389 --> 00:29:01,440

following this when we arranged for them

822

00:29:05,990 --> 00:29:04,399

to talk uh to luca to assess his health

823

00:29:08,310 --> 00:29:06,000

and uh they

824

00:29:12,710 --> 00:29:08,320

they've not reported any any ill effects

825

00:29:19,909 --> 00:29:16,070

um so if he ingested any any water that

826
00:29:22,070 --> 00:29:19,919
was um painted from the liquid cooling

827
00:29:23,590 --> 00:29:22,080
garment or the

828
00:29:25,029 --> 00:29:23,600
film on the

829
00:29:27,590 --> 00:29:25,039
inside the helmet that you had mentioned

830
00:29:28,549 --> 00:29:27,600
earlier there are no health implications

831
00:29:31,190 --> 00:29:28,559
for that

832
00:29:33,510 --> 00:29:31,200
yeah no that we're aware of

833
00:29:35,190 --> 00:29:33,520
thank you okay thanks irene let's go to

834
00:29:41,029 --> 00:29:35,200
elizabeth barber with christian science

835
00:29:44,789 --> 00:29:43,430
elizabeth are you there

836
00:29:51,750 --> 00:29:44,799
all right let's move along to carrie

837
00:29:57,110 --> 00:29:54,310
all right marcia dunn associated press

838
00:29:59,269 --> 00:29:57,120

hi can you hear me yeah oh good um i

839

00:30:01,590 --> 00:29:59,279

have a couple of questions

840

00:30:03,830 --> 00:30:01,600

um if the two water sources are either

841

00:30:06,710 --> 00:30:03,840

the water bag or the garment cooling

842

00:30:08,630 --> 00:30:06,720

system the garment or the tanks doesn't

843

00:30:10,630 --> 00:30:08,640

this mean the garment or the tanks are

844

00:30:14,070 --> 00:30:10,640

the number one suspects in at this point

845

00:30:18,710 --> 00:30:15,909

i would say that the

846

00:30:20,830 --> 00:30:18,720

likelihood of the leak coming from the

847

00:30:23,350 --> 00:30:20,840

drink bag is

848

00:30:24,710 --> 00:30:23,360

um pretty low at this point given what

849

00:30:26,230 --> 00:30:24,720

the crew has

850

00:30:28,230 --> 00:30:26,240

told us but

851
00:30:30,389 --> 00:30:28,240
like we always do i'm sure you've seen

852
00:30:32,070 --> 00:30:30,399
these press conferences before when we

853
00:30:33,830 --> 00:30:32,080
have different things that don't go as

854
00:30:35,190 --> 00:30:33,840
planned on orbit

855
00:30:36,789 --> 00:30:35,200
our whole

856
00:30:38,789 --> 00:30:36,799
spacewalk community will be working

857
00:30:40,470 --> 00:30:38,799
through a fault tree

858
00:30:42,310 --> 00:30:40,480
and checking off

859
00:30:45,990 --> 00:30:42,320
every possible source that we can think

860
00:30:51,510 --> 00:30:47,830
okay i have two more questions if i

861
00:30:54,310 --> 00:30:51,520
might i'm wondering um the risks um of

862
00:30:56,950 --> 00:30:54,320
all that water inside his helmet inside

863
00:30:58,710 --> 00:30:56,960

the entire suit actually um

864

00:31:01,830 --> 00:30:58,720

are there systems in there that could

865

00:31:03,510 --> 00:31:01,840

have if wet could have given him a shock

866

00:31:05,029 --> 00:31:03,520

and i'm wondering it might you know

867

00:31:08,710 --> 00:31:05,039

choking or drowning even have been a

868

00:31:10,710 --> 00:31:08,720

possibility if he'd had no relief

869

00:31:12,870 --> 00:31:10,720

so the choking or drowning is definitely

870

00:31:13,750 --> 00:31:12,880

a possibility

871

00:31:15,269 --> 00:31:13,760

there's

872

00:31:17,110 --> 00:31:15,279

very little in the way of electrical

873

00:31:19,350 --> 00:31:17,120

systems inside the suit on purpose

874

00:31:20,549 --> 00:31:19,360

because it is also a pure oxygen

875

00:31:22,389 --> 00:31:20,559

environment

876

00:31:25,669 --> 00:31:22,399

so the only systems inside the suit that

877

00:31:28,950 --> 00:31:25,679

are electrical is the com cap and the

878

00:31:31,350 --> 00:31:28,960

biomed sensors which are pretty low uh

879

00:31:33,990 --> 00:31:31,360

low voltage type systems

880

00:31:35,669 --> 00:31:34,000

thank you and my last question had to do

881

00:31:40,070 --> 00:31:35,679

with the the uh

882

00:31:41,990 --> 00:31:40,080

the test the tension the tension um

883

00:31:43,830 --> 00:31:42,000

in mission control if this was all

884

00:31:46,149 --> 00:31:43,840

happening especially as the problem

885

00:31:48,710 --> 00:31:46,159

seemed to mount and you couldn't see he

886

00:31:51,110 --> 00:31:48,720

couldn't hear he couldn't speak um was

887

00:31:53,350 --> 00:31:51,120

that scary i'm just wondering how would

888

00:31:55,029 --> 00:31:53,360

you characterize that it must have been

889

00:31:57,590 --> 00:31:55,039

some hairy moments for the flight

890

00:31:59,190 --> 00:31:57,600

controllers as well

891

00:32:02,630 --> 00:31:59,200

you know

892

00:32:04,470 --> 00:32:02,640

we train a lot of these things and we go

893

00:32:07,750 --> 00:32:04,480

through uh generic and then

894

00:32:10,070 --> 00:32:07,760

uh task specific simulations and we uh

895

00:32:13,110 --> 00:32:10,080

we always try to train uh some level of

896

00:32:15,669 --> 00:32:13,120

emergency and uh you get to where you

897

00:32:17,269 --> 00:32:15,679

are in our business whether you're the

898

00:32:20,070 --> 00:32:17,279

eva officer or anybody else in the

899

00:32:20,950 --> 00:32:20,080

control room uh by uh having proven that

900

00:32:23,269 --> 00:32:20,960

you can

901
00:32:24,950 --> 00:32:23,279
go through things and think clearly

902
00:32:27,430 --> 00:32:24,960
and kind of divorce yourself from the

903
00:32:28,630 --> 00:32:27,440
the actual moment at hand and just work

904
00:32:30,549 --> 00:32:28,640
through the way you've been trained work

905
00:32:31,990 --> 00:32:30,559
through your procedures and and that's

906
00:32:33,509 --> 00:32:32,000
kind of the way the team

907
00:32:35,669 --> 00:32:33,519
actually performed today they did a

908
00:32:38,789 --> 00:32:35,679
great job everyone responded

909
00:32:40,870 --> 00:32:38,799
very promptly very succinctly and we

910
00:32:42,389 --> 00:32:40,880
worked through understanding where we

911
00:32:43,269 --> 00:32:42,399
were and as soon as we got a good sense

912
00:32:45,350 --> 00:32:43,279
that

913
00:32:46,230 --> 00:32:45,360

from both chris and luca working as a

914

00:32:48,070 --> 00:32:46,240

team

915

00:32:51,430 --> 00:32:48,080

on board that the the water was

916

00:32:53,269 --> 00:32:51,440

increasing in volume in luca's helmet

917

00:32:55,590 --> 00:32:53,279

we immediately kicked into the

918

00:32:57,990 --> 00:32:55,600

terminated eva mode and everyone

919

00:33:00,310 --> 00:32:58,000

understood clearly what that meant and

920

00:33:02,549 --> 00:33:00,320

we got him back in the airlock expedited

921

00:33:07,590 --> 00:33:02,559

getting the suit and helmet off and got

922

00:33:11,509 --> 00:33:09,909

and so how big of a relief was it when

923

00:33:13,269 --> 00:33:11,519

he finally got the helmet off i mean was

924

00:33:15,029 --> 00:33:13,279

there an audible sight going through the

925

00:33:16,310 --> 00:33:15,039

mission control tell me tell me how that

926
00:33:18,549 --> 00:33:16,320
moment was

927
00:33:19,590 --> 00:33:18,559
you know for me you know anytime you do

928
00:33:21,029 --> 00:33:19,600
anything

929
00:33:23,029 --> 00:33:21,039
like eva or whatever it's always

930
00:33:25,190 --> 00:33:23,039
dangerous there's always a great sigh of

931
00:33:27,509 --> 00:33:25,200
relief inwardly when the crew's back

932
00:33:28,950 --> 00:33:27,519
safe inside period

933
00:33:31,750 --> 00:33:28,960
honestly

934
00:33:33,669 --> 00:33:31,760
going through the moment at the time

935
00:33:35,190 --> 00:33:33,679
a lot of it was starting to think about

936
00:33:36,310 --> 00:33:35,200
why why did this happen what could have

937
00:33:38,389 --> 00:33:36,320
gone wrong

938
00:33:39,350 --> 00:33:38,399

and what do we what data do we need to

939

00:33:40,149 --> 00:33:39,360

gather

940

00:33:47,909 --> 00:33:40,159

uh

941

00:33:49,029 --> 00:33:47,919

we lose the sense of the detail so those

942

00:33:51,029 --> 00:33:49,039

are the first things that we start

943

00:33:53,830 --> 00:33:51,039

thinking about and there's time later on

944

00:33:56,230 --> 00:33:53,840

to sigh relief

945

00:33:59,750 --> 00:33:56,240

thank you okay marcia smith with space

946

00:34:04,950 --> 00:34:01,909

yes i had a question about how long it

947

00:34:07,190 --> 00:34:04,960

took again for the uh crew to get back

948

00:34:09,510 --> 00:34:07,200

into the airlock and you had mentioned

949

00:34:11,589 --> 00:34:09,520

that there were even more expedited

950

00:34:13,270 --> 00:34:11,599

procedures that you could have used so

951
00:34:14,629 --> 00:34:13,280
would you confirm it was 25 minutes

952
00:34:16,550 --> 00:34:14,639
before they got back to the airlock and

953
00:34:17,510 --> 00:34:16,560
then 10 minutes before they were either

954
00:34:19,589 --> 00:34:17,520
suits

955
00:34:21,589 --> 00:34:19,599
is that about right and and how much

956
00:34:24,550 --> 00:34:21,599
more quickly could they have gotten back

957
00:34:26,470 --> 00:34:24,560
in if you'd realize how serious it was

958
00:34:28,230 --> 00:34:26,480
yeah i don't have my detailed timeline

959
00:34:29,750 --> 00:34:28,240
with me but it was about 20 minutes from

960
00:34:32,710 --> 00:34:29,760
the moment we

961
00:34:35,030 --> 00:34:32,720
declared uh let's terminate the eva

962
00:34:36,710 --> 00:34:35,040
until chris was back in the airlock with

963
00:34:37,990 --> 00:34:36,720

the hatch closed luca was back in the

964

00:34:40,790 --> 00:34:38,000

airlock

965

00:34:42,869 --> 00:34:40,800

much sooner than that

966

00:34:45,270 --> 00:34:42,879

again i i don't have the specifics with

967

00:34:48,629 --> 00:34:45,280

me about how much quicker the

968

00:34:50,629 --> 00:34:48,639

expedited or the emergency repress

969

00:34:52,629 --> 00:34:50,639

scenario works out i don't know if you

970

00:34:55,270 --> 00:34:52,639

remember that the

971

00:34:57,109 --> 00:34:55,280

the equalization valve in the hatch can

972

00:34:58,790 --> 00:34:57,119

repressurize the air lock very very

973

00:34:59,670 --> 00:34:58,800

quickly i don't i don't have a number

974

00:35:01,109 --> 00:34:59,680

but

975

00:35:03,430 --> 00:35:01,119

if we had needed to turn that to the

976
00:35:06,310 --> 00:35:03,440
emergency position and we had actually

977
00:35:08,150 --> 00:35:06,320
given karen on board the heads up and

978
00:35:09,510 --> 00:35:08,160
the eba crew as well to be ready and

979
00:35:11,510 --> 00:35:09,520
that they could do that if they needed

980
00:35:12,950 --> 00:35:11,520
to they just turn it to a new position

981
00:35:14,710 --> 00:35:12,960
and it would repressurize the airlock

982
00:35:16,950 --> 00:35:14,720
very quickly and the other thing that we

983
00:35:20,230 --> 00:35:16,960
always practice with all of our eva

984
00:35:21,829 --> 00:35:20,240
crews is a crew rescue scenario so if

985
00:35:23,430 --> 00:35:21,839
luca had needed additional help getting

986
00:35:24,870 --> 00:35:23,440
back in the airlock

987
00:35:27,510 --> 00:35:24,880
the crew would have been perfectly

988
00:35:30,790 --> 00:35:27,520

prepared for chris to come help and get

989

00:35:32,790 --> 00:35:30,800

him back in the air lock any quicker

990

00:35:35,030 --> 00:35:32,800

thank you and could you also go over

991

00:35:40,630 --> 00:35:35,040

again how many functional spacesuits

992

00:35:45,349 --> 00:35:43,270

so i know that we have two because

993

00:35:48,069 --> 00:35:45,359

we had

994

00:35:49,829 --> 00:35:48,079

each of the two crew members can size up

995

00:35:52,069 --> 00:35:49,839

to the next size we that's something

996

00:35:53,270 --> 00:35:52,079

that we check before we do evas to

997

00:35:55,190 --> 00:35:53,280

understand what our backup suit

998

00:35:56,390 --> 00:35:55,200

capability is in case for instance we

999

00:35:58,710 --> 00:35:56,400

had a problem with the suit while we

1000

00:36:01,829 --> 00:35:58,720

were checking it out before these evas

1001
00:36:04,069 --> 00:36:01,839
so we do have at least two and we've got

1002
00:36:05,510 --> 00:36:04,079
a number of other parts on board and i

1003
00:36:06,870 --> 00:36:05,520
haven't counted up how many of those

1004
00:36:09,109 --> 00:36:06,880
parts could be put together into

1005
00:36:11,430 --> 00:36:09,119
additional suits

1006
00:36:13,510 --> 00:36:11,440
okay thank you all right amina khan with

1007
00:36:15,510 --> 00:36:13,520
los angeles times

1008
00:36:18,390 --> 00:36:15,520
hi um thank you for for taking my

1009
00:36:21,430 --> 00:36:18,400
questions i just have a couple um of the

1010
00:36:23,109 --> 00:36:21,440
one to 1.5 liters how much of that was

1011
00:36:24,630 --> 00:36:23,119
in the helmet and how much it was in the

1012
00:36:27,190 --> 00:36:24,640
suit you may have touched upon this a

1013
00:36:28,950 --> 00:36:27,200

little bit already but where exactly was

1014

00:36:32,470 --> 00:36:28,960

the water in the in the suit not the

1015

00:36:36,870 --> 00:36:35,030

i would say the majority of the water

1016

00:36:38,710 --> 00:36:36,880

that they reported was in the helmet you

1017

00:36:41,349 --> 00:36:38,720

know obviously some of it got absorbed

1018

00:36:43,030 --> 00:36:41,359

in the the calm cap the the snoopy cap

1019

00:36:44,550 --> 00:36:43,040

that you see the crew wear

1020

00:36:46,470 --> 00:36:44,560

um

1021

00:36:47,829 --> 00:36:46,480

that's that's really the main place that

1022

00:36:49,670 --> 00:36:47,839

they reported that water had been

1023

00:36:52,829 --> 00:36:49,680

absorbed um

1024

00:36:54,790 --> 00:36:52,839

so i'd say the most of it was in the

1025

00:36:57,190 --> 00:36:54,800

helmet okay

1026
00:36:59,750 --> 00:36:57,200
and have there been any other incidents

1027
00:37:02,310 --> 00:36:59,760
of of damage to just i mean what's the

1028
00:37:04,630 --> 00:37:02,320
normal sort of wear and tear or or sort

1029
00:37:08,069 --> 00:37:04,640
of accidental malfunctions with tooth

1030
00:37:13,430 --> 00:37:09,589
we have not seen

1031
00:37:15,030 --> 00:37:13,440
a situation like this before um

1032
00:37:17,270 --> 00:37:15,040
you know we've had a smattering of other

1033
00:37:19,430 --> 00:37:17,280
things for instance

1034
00:37:22,470 --> 00:37:19,440
co2 sensors as it's been mentioned

1035
00:37:24,710 --> 00:37:22,480
before those are susceptible to water

1036
00:37:26,710 --> 00:37:24,720
in the ventilation loop moisture in the

1037
00:37:30,069 --> 00:37:26,720
ventilation loop or humidity

1038
00:37:31,910 --> 00:37:30,079

we've seen that a few different times

1039

00:37:34,550 --> 00:37:31,920

but overall i would have to say that our

1040

00:37:36,950 --> 00:37:34,560

suits are very robust they're they're

1041

00:37:40,150 --> 00:37:36,960

well designed and we don't very often

1042

00:37:45,430 --> 00:37:43,910

thank you okay bill harwood with cbs

1043

00:37:47,109 --> 00:37:45,440

hey thanks guys making sure you can hear

1044

00:37:49,030 --> 00:37:47,119

me yeah we can hear you

1045

00:37:50,710 --> 00:37:49,040

thanks um you know i just wanted to

1046

00:37:52,230 --> 00:37:50,720

parse the answer to a couple of these

1047

00:37:53,829 --> 00:37:52,240

earlier questions about

1048

00:37:55,270 --> 00:37:53,839

the situation luke would've been i mean

1049

00:37:57,109 --> 00:37:55,280

is this a case where

1050

00:37:58,710 --> 00:37:57,119

you ordered an early termination because

1051
00:38:00,870 --> 00:37:58,720
you wanted to protect against the

1052
00:38:05,190 --> 00:38:00,880
possibility of him being in real trouble

1053
00:38:08,630 --> 00:38:07,349
it it was clear that he was having

1054
00:38:10,230 --> 00:38:08,640
trouble we were definitely in a

1055
00:38:11,349 --> 00:38:10,240
situation where

1056
00:38:12,870 --> 00:38:11,359
um

1057
00:38:15,349 --> 00:38:12,880
we weren't expecting to be you know we

1058
00:38:17,190 --> 00:38:15,359
don't expect any water to be in the uh

1059
00:38:19,510 --> 00:38:17,200
above and beyond just normal sweating

1060
00:38:21,270 --> 00:38:19,520
inside the the helmet and when he

1061
00:38:23,670 --> 00:38:21,280
started reporting that it was

1062
00:38:24,950 --> 00:38:23,680
accumulating around his ears that's the

1063
00:38:27,510 --> 00:38:24,960

point at which we said you know we are

1064

00:38:29,270 --> 00:38:27,520

not comfortable doing anything else

1065

00:38:32,310 --> 00:38:29,280

for the rest of the eda i wouldn't i

1066

00:38:33,910 --> 00:38:32,320

wouldn't want my team to press forward

1067

00:38:35,910 --> 00:38:33,920

or have luca press forward trying to do

1068

00:38:37,829 --> 00:38:35,920

any tasks where we couldn't guarantee

1069

00:38:39,510 --> 00:38:37,839

that he could hear us clearly or

1070

00:38:41,829 --> 00:38:39,520

understand what we were telling him so

1071

00:38:43,670 --> 00:38:41,839

it was that point that we said this is a

1072

00:38:45,670 --> 00:38:43,680

good good place and a good reason to

1073

00:38:46,870 --> 00:38:45,680

terminate the eva

1074

00:38:48,710 --> 00:38:46,880

certainly when he got back to the

1075

00:38:50,710 --> 00:38:48,720

airlock the water accumulation started

1076
00:38:53,270 --> 00:38:50,720
to increase and so we knew we had made

1077
00:38:54,550 --> 00:38:53,280
the right decision

1078
00:38:55,510 --> 00:38:54,560
thanks and one more quick along those

1079
00:38:57,109 --> 00:38:55,520
lines

1080
00:38:58,630 --> 00:38:57,119
water in the helmet

1081
00:39:00,230 --> 00:38:58,640
i'm trying to picture that fishbowl

1082
00:39:01,670 --> 00:39:00,240
thing you were describing earlier with

1083
00:39:03,349 --> 00:39:01,680
without gravity

1084
00:39:05,190 --> 00:39:03,359
and it sounds like the real threat would

1085
00:39:06,390 --> 00:39:05,200
be starting to cough and you'd have a

1086
00:39:09,030 --> 00:39:06,400
hard time with that and then that could

1087
00:39:10,870 --> 00:39:09,040
get to be something worse um

1088
00:39:14,069 --> 00:39:10,880

is that kind of the threat you face if

1089

00:39:15,990 --> 00:39:14,079

you have too much water in the helmet

1090

00:39:18,470 --> 00:39:16,000

i'd say yes that's that's a correct

1091

00:39:19,990 --> 00:39:18,480

assessment of it um and you know if it's

1092

00:39:22,550 --> 00:39:20,000

just a little bit obviously you cough

1093

00:39:24,310 --> 00:39:22,560

you can expel that similar to how you do

1094

00:39:26,390 --> 00:39:24,320

here on earth but like i was describing

1095

00:39:28,150 --> 00:39:26,400

earlier in zero gravity the water tends

1096

00:39:30,550 --> 00:39:28,160

to wanna to

1097

00:39:32,310 --> 00:39:30,560

pool in just a big glob

1098

00:39:35,750 --> 00:39:32,320

and there's some interesting videos

1099

00:39:37,349 --> 00:39:35,760

probably available on youtube that um

1100

00:39:39,510 --> 00:39:37,359

i believe it was

1101
00:39:41,190 --> 00:39:39,520
chris hadfield did somebody asked him

1102
00:39:42,870 --> 00:39:41,200
can you cry in space and so he did a

1103
00:39:44,550 --> 00:39:42,880
little bit of experiment with a water

1104
00:39:45,750 --> 00:39:44,560
bag and he basically squirted water in

1105
00:39:47,750 --> 00:39:45,760
his eye and you can see it just becomes

1106
00:39:53,510 --> 00:39:47,760
this big glob of water in his eye it

1107
00:39:57,349 --> 00:39:55,510
okay one more quick one for me to follow

1108
00:39:58,630 --> 00:39:57,359
up marcia smith's question you had the

1109
00:39:59,990 --> 00:39:58,640
two suits you used today and i guess

1110
00:40:02,230 --> 00:40:00,000
what you're thinking is you have enough

1111
00:40:04,150 --> 00:40:02,240
spare parts you could possibly assemble

1112
00:40:06,630 --> 00:40:04,160
a third or do you have two backups i was

1113
00:40:07,430 --> 00:40:06,640

confused we have two full backups that

1114

00:40:08,950 --> 00:40:07,440

were

1115

00:40:10,950 --> 00:40:08,960

would have been ready to go today if we

1116

00:40:12,710 --> 00:40:10,960

had needed them during some of the

1117

00:40:14,150 --> 00:40:12,720

preparation work for these evas so we do

1118

00:40:16,710 --> 00:40:14,160

have two full backups and then

1119

00:40:18,230 --> 00:40:16,720

additional parts on top of that

1120

00:40:19,589 --> 00:40:18,240

thank you very much

1121

00:40:23,270 --> 00:40:19,599

okay thanks bill let's go to todd

1122

00:40:26,790 --> 00:40:25,270

uh thanks very much can you hear me yeah

1123

00:40:28,630 --> 00:40:26,800

we can

1124

00:40:30,910 --> 00:40:28,640

uh great um

1125

00:40:32,630 --> 00:40:30,920

this was uh the

1126

00:40:35,030 --> 00:40:32,640

171st

1127

00:40:38,230 --> 00:40:35,040

eva since assembly and maintenance of

1128

00:40:38,950 --> 00:40:38,240

the station began in late 1998

1129

00:40:40,790 --> 00:40:38,960

and

1130

00:40:43,109 --> 00:40:40,800

i'm wondering what this incident says

1131

00:40:45,670 --> 00:40:43,119

about the fact that you guys have been

1132

00:40:48,950 --> 00:40:45,680

able to uh pull off this

1133

00:40:50,069 --> 00:40:48,960

assembly uh and all of the other work

1134

00:40:54,550 --> 00:40:50,079

without

1135

00:40:59,030 --> 00:40:57,270

well i think it just uh it's just more

1136

00:41:01,190 --> 00:40:59,040

is a testament to the

1137

00:41:03,510 --> 00:41:01,200

to the uh the hardware that that gets

1138

00:41:04,550 --> 00:41:03,520

produced it gets gets flown to orbit and

1139

00:41:06,790 --> 00:41:04,560

the uh

1140

00:41:08,790 --> 00:41:06,800

and uh again along the way we've had our

1141

00:41:10,630 --> 00:41:08,800

challenges as karina said you know we've

1142

00:41:12,870 --> 00:41:10,640

had some problems with co2 sensors but

1143

00:41:15,589 --> 00:41:12,880

the team understands what to do when we

1144

00:41:17,270 --> 00:41:15,599

have those problems they're not uh

1145

00:41:19,349 --> 00:41:17,280

you know they're not life-threatening

1146

00:41:20,790 --> 00:41:19,359

when you manage them properly and so the

1147

00:41:23,190 --> 00:41:20,800

team has figured out how to manage your

1148

00:41:25,510 --> 00:41:23,200

way through those uh but the the

1149

00:41:28,150 --> 00:41:25,520

robustness of the hardware that that has

1150

00:41:30,309 --> 00:41:28,160

has come out of the eva project has been

1151

00:41:31,829 --> 00:41:30,319

been very good through the years and and

1152

00:41:35,190 --> 00:41:31,839

as you said we've done

1153

00:41:36,630 --> 00:41:35,200

a lot of ebas and we've had a

1154

00:41:38,950 --> 00:41:36,640

you know very good performance in the

1155

00:41:40,630 --> 00:41:38,960

airlock and so

1156

00:41:43,030 --> 00:41:40,640

again we'll go figure out what happened

1157

00:41:45,109 --> 00:41:43,040

in this instance and uh and we'll uh

1158

00:41:51,829 --> 00:41:45,119

we'll get back up and get ready to go to

1159

00:41:56,550 --> 00:41:53,510

thanks um

1160

00:41:59,109 --> 00:41:56,560

and uh i also wondered

1161

00:42:03,030 --> 00:41:59,119

you know what you would um

1162

00:42:04,470 --> 00:42:03,040

or david would say about the risks that

1163

00:42:06,790 --> 00:42:04,480

are involved with

1164

00:42:09,270 --> 00:42:06,800

space walking work just in a general

1165

00:42:11,670 --> 00:42:09,280

sense um i mean you guys mentioned that

1166

00:42:13,990 --> 00:42:11,680

this is part of the business of

1167

00:42:17,510 --> 00:42:14,000

operating a space station but i'm not

1168

00:42:20,790 --> 00:42:17,520

sure the public understands exactly uh

1169

00:42:22,630 --> 00:42:20,800

how much risk there is involved here and

1170

00:42:26,550 --> 00:42:22,640

i'm wondering if you could characterize

1171

00:42:30,790 --> 00:42:28,630

well let's see if i can sum that up in a

1172

00:42:33,109 --> 00:42:30,800

couple of seconds the i i can tell you

1173

00:42:35,829 --> 00:42:33,119

personally i've gotten a a much greater

1174

00:42:38,950 --> 00:42:35,839

appreciation of what goes into

1175

00:42:40,150 --> 00:42:38,960

preparing and conducting an eva

1176

00:42:42,230 --> 00:42:40,160

and i've been in the flight director

1177

00:42:45,030 --> 00:42:42,240

office for about seven years

1178

00:42:47,990 --> 00:42:45,040

and getting deep involved in this there

1179

00:42:49,670 --> 00:42:48,000

there are many many factors and you know

1180

00:42:51,990 --> 00:42:49,680

not to say this lightly but the the

1181

00:42:53,349 --> 00:42:52,000

devil is in the details absolutely and

1182

00:42:56,470 --> 00:42:53,359

and the folks

1183

00:43:00,150 --> 00:42:56,480

um in the eva project the the eva

1184

00:43:02,630 --> 00:43:00,160

operations team spend a lot of time

1185

00:43:04,790 --> 00:43:02,640

going through the details

1186

00:43:07,190 --> 00:43:04,800

whether it's procedures training the

1187

00:43:09,030 --> 00:43:07,200

hardware the maintenance of the hardware

1188

00:43:11,109 --> 00:43:09,040

there are a lot of aspects to this you

1189

00:43:13,190 --> 00:43:11,119

have to take into consideration

1190

00:43:15,190 --> 00:43:13,200

you've got to consider

1191

00:43:16,950 --> 00:43:15,200

temperatures outside on the different

1192

00:43:18,150 --> 00:43:16,960

modules and where the crew is going you

1193

00:43:20,870 --> 00:43:18,160

have to consider

1194

00:43:22,150 --> 00:43:20,880

how they get from point a to point b

1195

00:43:23,510 --> 00:43:22,160

you want to make sure they're tethered

1196

00:43:24,950 --> 00:43:23,520

properly

1197

00:43:26,829 --> 00:43:24,960

that all their equipment is tethered

1198

00:43:28,950 --> 00:43:26,839

properly

1199

00:43:31,270 --> 00:43:28,960

micrometeoroids you're always worried

1200

00:43:32,630 --> 00:43:31,280

about your procedures to deal with you

1201
00:43:34,710 --> 00:43:32,640
know the

1202
00:43:36,390 --> 00:43:34,720
unexpected and you know

1203
00:43:38,069 --> 00:43:36,400
hit of a micrometeoroid or something

1204
00:43:40,069 --> 00:43:38,079
that punctures the suit we worry about

1205
00:43:42,390 --> 00:43:40,079
gloves

1206
00:43:43,750 --> 00:43:42,400
we worry about

1207
00:43:45,510 --> 00:43:43,760
things floating away and not getting

1208
00:43:47,589 --> 00:43:45,520
away from us being able to have leverage

1209
00:43:49,270 --> 00:43:47,599
at the work sites so you can

1210
00:43:50,790 --> 00:43:49,280
you can get your task done

1211
00:43:52,950 --> 00:43:50,800
in a good manner and everything is

1212
00:43:55,589 --> 00:43:52,960
optimized for a six and a half hour

1213
00:43:56,790 --> 00:43:55,599

period of time outside and you're in a

1214

00:43:58,950 --> 00:43:56,800

very limited

1215

00:44:01,109 --> 00:43:58,960

mini spacesuit or a mini space station

1216

00:44:03,430 --> 00:44:01,119

that's going around outside

1217

00:44:04,710 --> 00:44:03,440

that's got limited consumables

1218

00:44:06,950 --> 00:44:04,720

so you got to get a lot done in a short

1219

00:44:09,030 --> 00:44:06,960

period of time and get back in safely so

1220

00:44:10,470 --> 00:44:09,040

there's a lot that goes into it i'm

1221

00:44:12,470 --> 00:44:10,480

certainly much more appreciative of

1222

00:44:13,990 --> 00:44:12,480

what's involved and

1223

00:44:16,790 --> 00:44:14,000

that's why you know as kenny mentioned

1224

00:44:19,589 --> 00:44:16,800

we don't take evas lightly at all and

1225

00:44:21,589 --> 00:44:19,599

everyone that goes out the door

1226

00:44:23,510 --> 00:44:21,599

we try to do our best to meet the

1227

00:44:25,030 --> 00:44:23,520

requirements but when the crew is back

1228

00:44:28,550 --> 00:44:25,040

in at the end of the day that's that's

1229

00:44:32,550 --> 00:44:30,230

all right thanks let's go to alan boyle

1230

00:44:34,950 --> 00:44:32,560

msnbc

1231

00:44:36,870 --> 00:44:34,960

hi thank you uh i just had a couple of

1232

00:44:40,230 --> 00:44:36,880

follow-up questions about the rate of

1233

00:44:42,230 --> 00:44:40,240

the accumulation of water uh it that's

1234

00:44:43,829 --> 00:44:42,240

just that it was

1235

00:44:46,309 --> 00:44:43,839

actually a leak in the system rather

1236

00:44:49,430 --> 00:44:46,319

than just a normal accumulation of water

1237

00:44:52,870 --> 00:44:49,440

and how much time do you think you had

1238

00:44:56,950 --> 00:44:52,880

left just judging by the rate of how the

1239

00:45:01,430 --> 00:44:59,510

it was definitely a leak in the system

1240

00:45:02,309 --> 00:45:01,440

this was this was not a normal amount of

1241

00:45:04,790 --> 00:45:02,319

water

1242

00:45:08,790 --> 00:45:04,800

and i i really couldn't quantify

1243

00:45:14,950 --> 00:45:11,910

but uh it definitely was accumulating at

1244

00:45:17,829 --> 00:45:14,960

a pretty fast rate uh what did it seem

1245

00:45:20,390 --> 00:45:17,839

fast to you uh were you surprised by

1246

00:45:25,510 --> 00:45:20,400

finding how much more water there was uh

1247

00:45:28,710 --> 00:45:27,430

um

1248

00:45:30,710 --> 00:45:28,720

i don't know that i would say i was

1249

00:45:32,470 --> 00:45:30,720

surprised um we knew that there was

1250

00:45:34,470 --> 00:45:32,480

going to be a a

1251
00:45:36,390 --> 00:45:34,480
good quantity of water and to be honest

1252
00:45:38,790 --> 00:45:36,400
i hadn't thought about what the

1253
00:45:41,670 --> 00:45:38,800
number was going to be

1254
00:45:46,309 --> 00:45:43,750
okay thanks okay thanks alan do we have

1255
00:45:47,430 --> 00:45:46,319
any followers here back in houston all

1256
00:45:49,030 --> 00:45:47,440
right that's going to wrap it up for us

1257
00:45:50,470 --> 00:45:49,040
we will of course keep you updated on

1258
00:45:51,750 --> 00:45:50,480
the latest during space station live

1259
00:45:54,470 --> 00:45:51,760
which airs every day here on nasa

1260
00:45:56,230 --> 00:45:54,480
television at 10 a.m central time 11 a.m

1261
00:45:58,630 --> 00:45:56,240
eastern time and of course on the space

1262
00:46:01,990 --> 00:45:58,640
station webpage on nasa.gov which is w

1263
00:46:04,550 --> 00:46:03,510

station thanks for joining us we will