
Center
Johns

1
00:00:04,950 --> 00:00:03,189
well good afternoon and welcome back to

2
00:00:07,030 --> 00:00:04,960
the johnson space center and thanks for

3
00:00:09,350 --> 00:00:07,040
joining us on short notice we're holding

4
00:00:10,950 --> 00:00:09,360
this iss status briefing today to bring

5
00:00:13,350 --> 00:00:10,960
you up to date on developments on the

6
00:00:15,430 --> 00:00:13,360
station and upcoming activities we only

7
00:00:17,109 --> 00:00:15,440
have 45 minutes today for the briefing

8
00:00:19,029 --> 00:00:17,119
due to other commitments by our briefers

9
00:00:21,109 --> 00:00:19,039
so we'll get underway right now

10
00:00:22,870 --> 00:00:21,119
and with us today are mike safradini the

11
00:00:25,509 --> 00:00:22,880
international space station program

12
00:00:26,790 --> 00:00:25,519
manager and norm knight the chief of the

13
00:00:28,550 --> 00:00:26,800

flight director office here at the

14
00:00:31,589 --> 00:00:28,560
johnson space center and we'll start off

15
00:00:33,590 --> 00:00:31,599
with mike good afternoon we're here

16
00:00:35,910 --> 00:00:33,600
today to talk a little bit about an eva

17
00:00:37,510 --> 00:00:35,920
that we're going to conduct tomorrow

18
00:00:38,869 --> 00:00:37,520
morning

19
00:00:40,389 --> 00:00:38,879
on the u.s

20
00:00:41,430 --> 00:00:40,399
segment of the international space

21
00:00:43,510 --> 00:00:41,440
station

22
00:00:45,750 --> 00:00:43,520
as many of you probably have seen in

23
00:00:47,190 --> 00:00:45,760
some videos a little before lunchtime

24
00:00:48,790 --> 00:00:47,200
yesterday the crew called down they were

25
00:00:51,510 --> 00:00:48,800
seeing flakes

26
00:00:53,590 --> 00:00:51,520
of snow coming off the space station

27
00:00:55,510 --> 00:00:53,600
itself you can see this in this video

28
00:00:57,350 --> 00:00:55,520
here

29
00:01:00,389 --> 00:00:57,360
consequently about the same time the

30
00:01:02,549 --> 00:01:00,399
ground team was looking at a data

31
00:01:05,109 --> 00:01:02,559
drop in quantities

32
00:01:08,230 --> 00:01:05,119
on on the ammonia cooling system on what

33
00:01:11,030 --> 00:01:08,240
we call the 2b power system it is one of

34
00:01:13,350 --> 00:01:11,040
the two power systems on the port

35
00:01:14,310 --> 00:01:13,360
outermost array set

36
00:01:15,990 --> 00:01:14,320
and

37
00:01:18,070 --> 00:01:16,000
what the data was showing us was that

38
00:01:20,710 --> 00:01:18,080

the quantity was dropping

39
00:01:22,710 --> 00:01:20,720
this is the system that has been leaking

40
00:01:25,030 --> 00:01:22,720
for some time actually had a very very

41
00:01:27,670 --> 00:01:25,040
small leak for many years

42
00:01:29,590 --> 00:01:27,680
last summer however it took a bit of a

43
00:01:31,670 --> 00:01:29,600
turn for the worse and as you might

44
00:01:33,350 --> 00:01:31,680
recall we did an eba

45
00:01:35,830 --> 00:01:33,360
we weren't exactly sure what the leak

46
00:01:37,830 --> 00:01:35,840
source was but if you looked at all the

47
00:01:39,109 --> 00:01:37,840
possible scenarios

48
00:01:40,550 --> 00:01:39,119
an mmod

49
00:01:41,510 --> 00:01:40,560
hit to the

50
00:01:44,149 --> 00:01:41,520
to the

51
00:01:46,630 --> 00:01:44,159
uh cooling radiator was a most likely

52
00:01:49,030 --> 00:01:46,640
cause and so we sent the crew out

53
00:01:51,270 --> 00:01:49,040
in the november time frame to isolate

54
00:01:53,030 --> 00:01:51,280
that radiator and hook up to some

55
00:01:55,830 --> 00:01:53,040
radiator that we used in the early

56
00:01:58,149 --> 00:01:55,840
system on board iss that was a

57
00:02:00,870 --> 00:01:58,159
completely successful eva

58
00:02:02,950 --> 00:02:00,880
and over the last several months six to

59
00:02:05,510 --> 00:02:02,960
seven months since that time the system

60
00:02:07,670 --> 00:02:05,520
has been operating well the radiator we

61
00:02:09,350 --> 00:02:07,680
isolated has not been leaking so the

62
00:02:10,869 --> 00:02:09,360
source of the leak is not there and we

63
00:02:13,670 --> 00:02:10,879

continue to see

64
00:02:15,510 --> 00:02:13,680
a a smaller leak not quite as dramatic

65
00:02:17,670 --> 00:02:15,520
as before we did the eva about on the

66
00:02:19,110 --> 00:02:17,680
order of five pounds

67
00:02:22,550 --> 00:02:19,120
a year

68
00:02:25,430 --> 00:02:22,560
but early yesterday morning the data

69
00:02:28,790 --> 00:02:25,440
shows that that changed significantly to

70
00:02:30,070 --> 00:02:28,800
about a a five pound mass ammonia leak

71
00:02:32,550 --> 00:02:30,080
per day

72
00:02:35,190 --> 00:02:32,560
and with that the it was predicted that

73
00:02:37,750 --> 00:02:35,200
the system would shut itself down

74
00:02:39,670 --> 00:02:37,760
by either late tonight

75
00:02:42,229 --> 00:02:39,680
or early tomorrow

76
00:02:44,470 --> 00:02:42,239
so the first thing we did was we worked

77
00:02:47,030 --> 00:02:44,480
together as a team to move all those

78
00:02:49,030 --> 00:02:47,040
power loads off the 2b array mostly to

79
00:02:50,229 --> 00:02:49,040
what we call the 2a array

80
00:02:54,390 --> 00:02:50,239
and

81
00:02:55,430 --> 00:02:54,400
to preserve the ammonia as much as we

82
00:02:58,470 --> 00:02:55,440
can

83
00:03:00,710 --> 00:02:58,480
and with that we got very fortunate that

84
00:03:03,670 --> 00:03:00,720
the crew members we have on orbit have

85
00:03:05,509 --> 00:03:03,680
been out to this uh this iea before

86
00:03:07,110 --> 00:03:05,519
in fact we had done quite a bit of work

87
00:03:09,030 --> 00:03:07,120
on the change out of the

88
00:03:10,229 --> 00:03:09,040

of the pump in question

89
00:03:12,470 --> 00:03:10,239
um

90
00:03:14,949 --> 00:03:12,480
as a as a preparatory act for the

91
00:03:16,790 --> 00:03:14,959
previous eva did in november and so the

92
00:03:18,630 --> 00:03:16,800
team was really very

93
00:03:19,990 --> 00:03:18,640
ready to try to go outside and take a

94
00:03:22,790 --> 00:03:20,000
look at this

95
00:03:24,869 --> 00:03:22,800
our primary objective really is to try

96
00:03:26,789 --> 00:03:24,879
to get a look um

97
00:03:28,869 --> 00:03:26,799
at the leak when it's uh when it's at

98
00:03:31,350 --> 00:03:28,879
this pressure and we're single phase in

99
00:03:32,390 --> 00:03:31,360
the lines we we produce this snow when

100
00:03:34,869 --> 00:03:32,400
we leak

101
00:03:38,070 --> 00:03:34,879
but these cracks or holes or whatever is

102
00:03:40,149 --> 00:03:38,080
leaking is very very small and so uh

103
00:03:41,670 --> 00:03:40,159
once the leak

104
00:03:44,869 --> 00:03:41,680
goes down to a point where you don't see

105
00:03:47,110 --> 00:03:44,879
the snow anymore be very hard to find

106
00:03:48,949 --> 00:03:47,120
so since the crew is prepared and our

107
00:03:50,789 --> 00:03:48,959
ops team is ready to go

108
00:03:52,789 --> 00:03:50,799
we're going to get them outside and see

109
00:03:54,550 --> 00:03:52,799
if we can't lay eyes on the on the

110
00:03:56,710 --> 00:03:54,560
actual leak source

111
00:03:59,030 --> 00:03:56,720
while we're there the most likely next

112
00:04:01,110 --> 00:03:59,040
most likely cause really is the pump

113
00:04:02,550 --> 00:04:01,120

itself and the and the qd's associated

114
00:04:03,830 --> 00:04:02,560
the pump so we can go ahead and change

115
00:04:06,550 --> 00:04:03,840
out that pump

116
00:04:09,830 --> 00:04:06,560
and uh see if we can't um

117
00:04:11,910 --> 00:04:09,840
uh recover the uh the system

118
00:04:14,789 --> 00:04:11,920
now keep in mind that depending on how

119
00:04:16,789 --> 00:04:14,799
much ammonia is left uh once we change

120
00:04:18,469 --> 00:04:16,799
the pump out we may not be able to start

121
00:04:20,870 --> 00:04:18,479
the system right up we may have to wait

122
00:04:22,870 --> 00:04:20,880
to a subsequent eva to fill the system

123
00:04:25,510 --> 00:04:22,880
up that'll depend on how much ammonia we

124
00:04:26,710 --> 00:04:25,520
lost uh between now and the eva and

125
00:04:29,749 --> 00:04:26,720
whether or not the change out of the

126
00:04:31,909 --> 00:04:29,759
pump actually arrests the leak or not

127
00:04:33,110 --> 00:04:31,919
so the team's ready to go

128
00:04:35,590 --> 00:04:33,120
norm is going to talk to you a little

129
00:04:37,270 --> 00:04:35,600
bit about that now it does not affect

130
00:04:39,590 --> 00:04:37,280
the crew's departure

131
00:04:43,270 --> 00:04:39,600
during this eva we'll use tom who's in

132
00:04:44,870 --> 00:04:43,280
the right seat of the soyuz and chris

133
00:04:46,230 --> 00:04:44,880
cassidy who actually is going to remain

134
00:04:48,710 --> 00:04:46,240
on board

135
00:04:51,830 --> 00:04:48,720
when tom and chris hadfield and roman

136
00:04:53,189 --> 00:04:51,840
depart monday afternoon

137
00:04:55,110 --> 00:04:53,199
so we've got

138
00:04:56,870 --> 00:04:55,120

tom's in good shape to go do the eva and

139
00:04:59,030 --> 00:04:56,880
then get on board the soyuz for a

140
00:05:01,670 --> 00:04:59,040
nominal return and so we'll do the eba

141
00:05:03,510 --> 00:05:01,680
tomorrow and bring the crew home on

142
00:05:05,189 --> 00:05:03,520
schedule on monday

143
00:05:07,670 --> 00:05:05,199
and so with that i'll go ahead and let

144
00:05:09,590 --> 00:05:07,680
norm tell you a few more of the details

145
00:05:11,510 --> 00:05:09,600
all right thank you mike

146
00:05:13,510 --> 00:05:11,520
the team's in good spirits what i'm

147
00:05:14,950 --> 00:05:13,520
going to cover today is to give you some

148
00:05:17,270 --> 00:05:14,960
insight into what the team has been

149
00:05:19,270 --> 00:05:17,280
doing over the past 24 hours since this

150
00:05:20,070 --> 00:05:19,280
leak was detected

151
00:05:22,070 --> 00:05:20,080
and

152
00:05:24,469 --> 00:05:22,080
talk about the activities that the crew

153
00:05:26,469 --> 00:05:24,479
has performed today in prep for the eva

154
00:05:30,070 --> 00:05:26,479
and then i'll talk a lot in detail about

155
00:05:33,029 --> 00:05:30,080
what tomorrow's activities are as well

156
00:05:35,029 --> 00:05:33,039
today for the last 24 hours the ops team

157
00:05:36,390 --> 00:05:35,039
and many other teams have been in a full

158
00:05:38,950 --> 00:05:36,400
court press

159
00:05:40,870 --> 00:05:38,960
to understand what the failure is

160
00:05:43,510 --> 00:05:40,880
we did this several ways first we

161
00:05:46,390 --> 00:05:43,520
acquired a great deal of imagery

162
00:05:49,189 --> 00:05:46,400
we have cameras on the external truss

163
00:05:51,670 --> 00:05:49,199

and external modules of station

164
00:05:54,150 --> 00:05:51,680
that provided some very good insight

165
00:05:56,550 --> 00:05:54,160
into uh to the leak that uh some of the

166
00:05:59,430 --> 00:05:56,560
video that mike showed you earlier

167
00:06:01,830 --> 00:05:59,440
we also had the crew perform some

168
00:06:03,909 --> 00:06:01,840
handheld camcorder video as well to

169
00:06:07,029 --> 00:06:03,919
provide that insight as well so we got a

170
00:06:09,029 --> 00:06:07,039
lot of imagery we've narrowed it down to

171
00:06:11,830 --> 00:06:09,039
the p6 solar array

172
00:06:13,189 --> 00:06:11,840
and in the iea type area and you saw

173
00:06:15,830 --> 00:06:13,199
that video earlier and i'll show you

174
00:06:18,150 --> 00:06:15,840
some graphics here in just a few minutes

175
00:06:21,670 --> 00:06:18,160
so the imagery helped tremendously being

176
00:06:24,230 --> 00:06:21,680
able to pinpoint this and that also led

177
00:06:25,350 --> 00:06:24,240
into the eva planning so the eba

178
00:06:27,270 --> 00:06:25,360
planning

179
00:06:28,390 --> 00:06:27,280
again we hit the ground running 24 hours

180
00:06:29,909 --> 00:06:28,400
ago

181
00:06:33,110 --> 00:06:29,919
knowing that we needed to get out to the

182
00:06:34,870 --> 00:06:33,120
p6 as mike mentioned the crew is very

183
00:06:36,710 --> 00:06:34,880
familiar with this area so we're very

184
00:06:37,990 --> 00:06:36,720
fortunate that they have experience in

185
00:06:40,870 --> 00:06:38,000
this area

186
00:06:42,550 --> 00:06:40,880
so the planning went on all night we put

187
00:06:43,830 --> 00:06:42,560
together a timeline

188
00:06:45,990 --> 00:06:43,840

and

189
00:06:48,629 --> 00:06:46,000
have a very good idea of what is

190
00:06:50,629 --> 00:06:48,639
required to go out and effect a change

191
00:06:51,670 --> 00:06:50,639
out and provide some visual inspections

192
00:06:53,830 --> 00:06:51,680
once they're out there and i'll go

193
00:06:55,909 --> 00:06:53,840
through that in detail a little bit but

194
00:06:57,909 --> 00:06:55,919
i'd be remiss not to mention that there

195
00:06:59,909 --> 00:06:57,919
is a lot of analysis that goes into this

196
00:07:02,469 --> 00:06:59,919
there's a lot of work behind the scenes

197
00:07:03,990 --> 00:07:02,479
that's taking place throughout the night

198
00:07:06,150 --> 00:07:04,000
to make this possible so there's a lot

199
00:07:08,150 --> 00:07:06,160
of teams doing a lot of good work

200
00:07:11,110 --> 00:07:08,160
to get us where we think we'll be ready

201
00:07:13,189 --> 00:07:11,120
to go out the door tomorrow morning so

202
00:07:15,749 --> 00:07:13,199
today's activities the crew woke up at

203
00:07:17,749 --> 00:07:15,759
around 1am and we're very excited to

204
00:07:20,150 --> 00:07:17,759
hear that they would be going out the

205
00:07:22,710 --> 00:07:20,160
door possibly saturday

206
00:07:23,830 --> 00:07:22,720
and so that made for a very happy day on

207
00:07:26,230 --> 00:07:23,840
their part

208
00:07:27,189 --> 00:07:26,240
they have been doing eva prep activities

209
00:07:29,029 --> 00:07:27,199
today

210
00:07:30,550 --> 00:07:29,039
suit resizing

211
00:07:32,150 --> 00:07:30,560
looking at the procedures the ground

212
00:07:34,390 --> 00:07:32,160
team has done an excellent job of

213
00:07:35,830 --> 00:07:34,400

getting the procedures on board

214
00:07:38,070 --> 00:07:35,840
so that the crew can review those

215
00:07:40,150 --> 00:07:38,080
they've had conferences with the ground

216
00:07:41,510 --> 00:07:40,160
in fact on the way over here i got a

217
00:07:43,749 --> 00:07:41,520
report that the crew was talking with

218
00:07:45,670 --> 00:07:43,759
the ops team and going over those

219
00:07:46,790 --> 00:07:45,680
procedures and they feel real good about

220
00:07:48,150 --> 00:07:46,800
them and

221
00:07:50,469 --> 00:07:48,160
we were working out some last minute

222
00:07:51,749 --> 00:07:50,479
details so things are really progressing

223
00:07:53,749 --> 00:07:51,759
in the right direction the crew will be

224
00:07:55,589 --> 00:07:53,759
going to bed at around

225
00:07:58,309 --> 00:07:55,599
16 30

226
00:08:01,350 --> 00:07:58,319
central time and will get up tomorrow

227
00:08:04,309 --> 00:08:01,360
morning bright and early for for their

228
00:08:06,710 --> 00:08:04,319
for their eva day so tomorrow we'll uh

229
00:08:08,309 --> 00:08:06,720
they will wake up around 1 a.m central

230
00:08:11,430 --> 00:08:08,319
daylight time

231
00:08:14,070 --> 00:08:11,440
eva prep will begin at around 2 15 in

232
00:08:17,029 --> 00:08:14,080
the morning and that will conclude

233
00:08:19,110 --> 00:08:17,039
with hatch opening around 7 15 a.m

234
00:08:21,430 --> 00:08:19,120
central time so that will be very

235
00:08:23,510 --> 00:08:21,440
exciting once outside

236
00:08:26,230 --> 00:08:23,520
the crew will spend about 45 minutes

237
00:08:28,710 --> 00:08:26,240
getting their tools configured getting

238
00:08:30,150 --> 00:08:28,720

all their tethers configured and start

239
00:08:32,230 --> 00:08:30,160
heading out to the work site and if we

240
00:08:33,589 --> 00:08:32,240
can go to the first visual coming up

241
00:08:35,990 --> 00:08:33,599
here there we go

242
00:08:36,949 --> 00:08:36,000
that's the work site that that they will

243
00:08:39,909 --> 00:08:36,959
be at

244
00:08:42,389 --> 00:08:39,919
it's labeled the 2b pfcs and what's

245
00:08:43,350 --> 00:08:42,399
denoted there in yellow is uh is a pump

246
00:08:45,509 --> 00:08:43,360
package

247
00:08:47,190 --> 00:08:45,519
their work site is about 150 feet away

248
00:08:51,190 --> 00:08:47,200
from the airlock so they will transit

249
00:08:53,030 --> 00:08:51,200
out along the truss on the port side

250
00:08:54,630 --> 00:08:53,040
to the solar array that you see there in

251
00:08:57,990 --> 00:08:54,640
the picture in the worksite that's

252
00:08:59,910 --> 00:08:58,000
denoted with the with the red arrow

253
00:09:02,070 --> 00:08:59,920
once at the worksite what they will be

254
00:09:06,949 --> 00:09:02,080
doing is performing a visual inspection

255
00:09:10,389 --> 00:09:08,230
they'll be performing a visual

256
00:09:11,990 --> 00:09:10,399
inspection around the area in yellow

257
00:09:14,790 --> 00:09:12,000
there depicted

258
00:09:16,389 --> 00:09:14,800
and that will provide better insight

259
00:09:19,030 --> 00:09:16,399
and complement the imagery that we

260
00:09:20,710 --> 00:09:19,040
gained uh yesterday to try to pinpoint

261
00:09:22,310 --> 00:09:20,720
where this leak is so we're going to get

262
00:09:24,310 --> 00:09:22,320
gather as much information as we can

263
00:09:27,910 --> 00:09:24,320

from the visual standpoint

264
00:09:29,430 --> 00:09:27,920
and the crew will then uh take that

265
00:09:32,150 --> 00:09:29,440
pfcu out

266
00:09:33,829 --> 00:09:32,160
there are two lock bolts that that run

267
00:09:35,269 --> 00:09:33,839
up and down in the picture there and

268
00:09:37,269 --> 00:09:35,279
there's two

269
00:09:39,750 --> 00:09:37,279
quick disconnects that are actuated with

270
00:09:41,509 --> 00:09:39,760
two bolts on the left and right side of

271
00:09:42,630 --> 00:09:41,519
that yellow box so they will take that

272
00:09:44,710 --> 00:09:42,640
box out

273
00:09:46,310 --> 00:09:44,720
and they will temp stow it

274
00:09:48,389 --> 00:09:46,320
the crew will then perform a visual

275
00:09:51,110 --> 00:09:48,399
inspection down in the bay where that

276
00:09:53,350 --> 00:09:51,120
box came out they will also look up

277
00:09:55,110 --> 00:09:53,360
under the box to make sure that there is

278
00:09:56,870 --> 00:09:55,120
nothing anomalous or anything that could

279
00:09:59,509 --> 00:09:56,880
provide some insight as to where this

280
00:10:02,310 --> 00:09:59,519
leak might be originating from

281
00:10:04,389 --> 00:10:02,320
if we go to the graphic on number three

282
00:10:07,110 --> 00:10:04,399
that's the box in question

283
00:10:09,509 --> 00:10:07,120
and if you see there on the what's

284
00:10:11,590 --> 00:10:09,519
depicted as h1 and h2 those are the two

285
00:10:14,310 --> 00:10:11,600
bolts that will release the quick

286
00:10:17,190 --> 00:10:14,320
disconnects that those are what

287
00:10:19,110 --> 00:10:17,200
interfaces the ammonia system

288
00:10:20,310 --> 00:10:19,120

to the pumps that are inside that box

289
00:10:22,470 --> 00:10:20,320
and provides the flow through the

290
00:10:23,670 --> 00:10:22,480
integrated electronic assembly and

291
00:10:26,310 --> 00:10:23,680
radiators

292
00:10:28,710 --> 00:10:26,320
in the system the other two bolts the h3

293
00:10:30,230 --> 00:10:28,720
and h4 are the structural bolts which

294
00:10:31,430 --> 00:10:30,240
hold it down

295
00:10:32,870 --> 00:10:31,440
into the bay

296
00:10:35,590 --> 00:10:32,880
and we go to the next graphic and it

297
00:10:38,470 --> 00:10:35,600
provides a nice view of the underside

298
00:10:42,150 --> 00:10:38,480
of this box it's aluminum structure

299
00:10:44,230 --> 00:10:42,160
and the two conical uh view two conical

300
00:10:45,750 --> 00:10:44,240
cones that you see there are the two

301
00:10:48,790 --> 00:10:45,760
structural bolts and you can see the

302
00:10:50,550 --> 00:10:48,800
qd's towards the front of the picture on

303
00:10:53,030 --> 00:10:50,560
either side

304
00:10:55,110 --> 00:10:53,040
so the crew will uh will temp stow that

305
00:10:56,470 --> 00:10:55,120
box they'll get some imagery

306
00:10:57,430 --> 00:10:56,480
the ground team will look at that as

307
00:11:00,069 --> 00:10:57,440
well

308
00:11:02,310 --> 00:11:00,079
and then they will translate out several

309
00:11:04,949 --> 00:11:02,320
feet to pick up the spare

310
00:11:07,509 --> 00:11:04,959
pump package they will remove that from

311
00:11:09,750 --> 00:11:07,519
the spare platform they will put it in

312
00:11:12,069 --> 00:11:09,760
and replace the

313
00:11:13,509 --> 00:11:12,079

hopefully anomalous pump package bolt

314
00:11:15,430 --> 00:11:13,519
that down

315
00:11:18,870 --> 00:11:15,440
integrate the qd's in

316
00:11:21,350 --> 00:11:18,880
and then take and stow the anomalous

317
00:11:23,110 --> 00:11:21,360
pump package back in that slot

318
00:11:25,350 --> 00:11:23,120
and that really concludes most of the

319
00:11:27,509 --> 00:11:25,360
activities that are going to be

320
00:11:28,550 --> 00:11:27,519
objectives that we want out of the eva

321
00:11:29,990 --> 00:11:28,560
at this point they're going to do a

322
00:11:31,030 --> 00:11:30,000
visual inspection we know there's

323
00:11:32,949 --> 00:11:31,040
ammonia

324
00:11:35,110 --> 00:11:32,959
in the area as evidenced by the video

325
00:11:37,509 --> 00:11:35,120
that mike showed earlier so they'll do a

326
00:11:39,110 --> 00:11:37,519
visual inspection of each other to make

327
00:11:42,710 --> 00:11:39,120
sure that there's no

328
00:11:45,269 --> 00:11:42,720
ammonia ice on their suits and once they

329
00:11:47,110 --> 00:11:45,279
have concluded that they are clean

330
00:11:48,630 --> 00:11:47,120
that starts a bake-out timer and we do

331
00:11:50,870 --> 00:11:48,640
that to make sure that we have adequate

332
00:11:52,230 --> 00:11:50,880
time for any hidden ammonia that might

333
00:11:54,870 --> 00:11:52,240
be on the suits

334
00:11:56,710 --> 00:11:54,880
to evaporate and on rough order

335
00:11:59,190 --> 00:11:56,720
magnitude 30 to 45 minutes that's

336
00:12:01,269 --> 00:11:59,200
required for that bake out time so they

337
00:12:03,350 --> 00:12:01,279
will uh that clock starts and they will

338
00:12:06,310 --> 00:12:03,360

begin their transit back

339
00:12:08,550 --> 00:12:06,320
to the airlock down the p6 truss

340
00:12:10,470 --> 00:12:08,560
and once they get in the airlock they

341
00:12:12,629 --> 00:12:10,480
will hook up on umbilicals

342
00:12:15,750 --> 00:12:12,639
they will repress the airlock to around

343
00:12:17,990 --> 00:12:15,760
5 psi and perform a test it's a drager

344
00:12:20,550 --> 00:12:18,000
tube and it's just a

345
00:12:21,670 --> 00:12:20,560
simple way of detecting how much ammonia

346
00:12:24,790 --> 00:12:21,680
might be

347
00:12:26,150 --> 00:12:24,800
in the atmosphere at that 5 psi level

348
00:12:27,350 --> 00:12:26,160
and based on that we'll make a

349
00:12:29,509 --> 00:12:27,360
determination of if there's

350
00:12:31,590 --> 00:12:29,519
contamination or not

351
00:12:33,670 --> 00:12:31,600
if consumables permit they may do a

352
00:12:34,870 --> 00:12:33,680
second test we don't anticipate that to

353
00:12:36,870 --> 00:12:34,880
be required

354
00:12:38,470 --> 00:12:36,880
and if consumables don't permit then

355
00:12:41,590 --> 00:12:38,480
they'll go ahead and press the airlock

356
00:12:43,190 --> 00:12:41,600
up and come back into station so we're

357
00:12:44,790 --> 00:12:43,200
looking forward to a very good day

358
00:12:46,949 --> 00:12:44,800
tomorrow a lot of hard work full court

359
00:12:48,710 --> 00:12:46,959
press and we're really excited

360
00:12:50,629 --> 00:12:48,720
that's all i have bro

361
00:12:53,110 --> 00:12:50,639
okay thanks norm we'll take questions

362
00:12:57,190 --> 00:12:53,120
now starting here at jsc with robert

363
00:13:01,670 --> 00:13:00,150

hi robert parlin with collectspace.com

364
00:13:03,190 --> 00:13:01,680
you mentioned that you were fortunate to

365
00:13:07,030 --> 00:13:03,200
have crew members who worked in this

366
00:13:09,670 --> 00:13:07,040
area before did that uh drive the desire

367
00:13:10,870 --> 00:13:09,680
to do this eba now before the undocking

368
00:13:13,269 --> 00:13:10,880
and not waiting for the next crew to

369
00:13:16,870 --> 00:13:13,279
come up or what were the what were the

370
00:13:19,750 --> 00:13:16,880
pressing needs to do this um as you know

371
00:13:21,590 --> 00:13:19,760
so quickly that's a good question the um

372
00:13:23,990 --> 00:13:21,600
i would say a little differently

373
00:13:25,910 --> 00:13:24,000
the fact that these two crew members

374
00:13:28,710 --> 00:13:25,920
have been out before

375
00:13:30,389 --> 00:13:28,720
uh and done an eva together in this area

376
00:13:32,230 --> 00:13:30,399
is one of the

377
00:13:35,350 --> 00:13:32,240
many factors that allowed us to do the

378
00:13:37,350 --> 00:13:35,360
eba before they departed the system the

379
00:13:39,110 --> 00:13:37,360
iss is fine with seven of eight channels

380
00:13:40,230 --> 00:13:39,120
and so we really don't need to rush for

381
00:13:42,470 --> 00:13:40,240
that reason

382
00:13:44,949 --> 00:13:42,480
as i tried to say earlier today one of

383
00:13:46,470 --> 00:13:44,959
the unique opportunities here is that

384
00:13:49,829 --> 00:13:46,480
the leak is big enough and the

385
00:13:51,990 --> 00:13:49,839
conditions are right uh at least at this

386
00:13:55,030 --> 00:13:52,000
phase of the leak down that if we can

387
00:13:57,189 --> 00:13:55,040
get in there and and actually see the

388
00:13:59,910 --> 00:13:57,199

origin of the leak because it's still

389
00:14:01,269 --> 00:13:59,920
emitting snow ammonia snow then we have

390
00:14:03,750 --> 00:14:01,279
a chance of

391
00:14:05,030 --> 00:14:03,760
figuring out uh the source of the leak

392
00:14:07,269 --> 00:14:05,040
obviously and then what we're going to

393
00:14:08,790 --> 00:14:07,279
do about it oftentimes these leaks are

394
00:14:10,710 --> 00:14:08,800
so small that

395
00:14:12,550 --> 00:14:10,720
if if it's not snowing you won't notice

396
00:14:13,670 --> 00:14:12,560
it with just eyeballs staring at the at

397
00:14:14,870 --> 00:14:13,680
the middle you're talking about very

398
00:14:16,550 --> 00:14:14,880
very small

399
00:14:18,870 --> 00:14:16,560
holes or cracks and so they'll be

400
00:14:20,870 --> 00:14:18,880
difficult to identify if we if if we

401
00:14:22,550 --> 00:14:20,880
lose these conditions so that's really

402
00:14:24,069 --> 00:14:22,560
what's driving us outside it's really

403
00:14:25,750 --> 00:14:24,079
not the need to get the power system

404
00:14:27,430 --> 00:14:25,760
back that quick it's really we have a

405
00:14:29,990 --> 00:14:27,440
unique opportunity until the pressures

406
00:14:31,829 --> 00:14:30,000
go down much more to actually visually

407
00:14:33,910 --> 00:14:31,839
identify if in fact it's in an area

408
00:14:35,829 --> 00:14:33,920
where we can where we can get to but to

409
00:14:37,430 --> 00:14:35,839
visually identify the source of the

410
00:14:39,750 --> 00:14:37,440
league

411
00:14:42,230 --> 00:14:39,760
and a follow-up for norm

412
00:14:45,110 --> 00:14:42,240
given how quickly this plan came

413
00:14:47,590 --> 00:14:45,120

together how does this compare to other

414
00:14:49,509 --> 00:14:47,600
unplanned ebas that have been done over

415
00:14:51,509 --> 00:14:49,519
the station's life

416
00:14:53,509 --> 00:14:51,519
are you getting better at

417
00:14:55,829 --> 00:14:53,519
pulling together a quick plan for eba or

418
00:14:57,750 --> 00:14:55,839
was this just a unique situation given

419
00:15:00,389 --> 00:14:57,760
the experience in the area i would

420
00:15:02,069 --> 00:15:00,399
categorize it as taking the totality of

421
00:15:03,430 --> 00:15:02,079
experience level

422
00:15:05,829 --> 00:15:03,440
need to go out

423
00:15:07,590 --> 00:15:05,839
and maturity of some plants that we

424
00:15:09,590 --> 00:15:07,600
already had in work

425
00:15:11,269 --> 00:15:09,600
with respect to you know we look ahead

426
00:15:13,189 --> 00:15:11,279
for failed mechanisms

427
00:15:14,710 --> 00:15:13,199
failed systems and have preliminary

428
00:15:16,310 --> 00:15:14,720
plans on the books so we have a pretty

429
00:15:18,470 --> 00:15:16,320
good idea of what's required to go

430
00:15:20,710 --> 00:15:18,480
effect a repair if we need it

431
00:15:22,790 --> 00:15:20,720
that combined with the fact that the

432
00:15:24,629 --> 00:15:22,800
crew is

433
00:15:26,790 --> 00:15:24,639
like mike said very trained they're

434
00:15:28,710 --> 00:15:26,800
familiar with the area it's almost a

435
00:15:30,389 --> 00:15:28,720
perfect setup so this this is definitely

436
00:15:31,670 --> 00:15:30,399
a full court press it's uh it's

437
00:15:32,949 --> 00:15:31,680
definitely a stress on the ops team

438
00:15:35,110 --> 00:15:32,959

they're doing great

439
00:15:36,870 --> 00:15:35,120
and uh you know we're in constant

440
00:15:38,870 --> 00:15:36,880
contact with the crew making sure that

441
00:15:40,629 --> 00:15:38,880
everybody is in sync with what's

442
00:15:41,749 --> 00:15:40,639
required and that we're safe to go out

443
00:15:43,509 --> 00:15:41,759
the door and we're going to finish up

444
00:15:45,430 --> 00:15:43,519
those final reviews later today but

445
00:15:47,269 --> 00:15:45,440
everything looks great and

446
00:15:49,030 --> 00:15:47,279
from a big picture standpoint this is

447
00:15:50,069 --> 00:15:49,040
this is a pretty good full court press

448
00:15:52,710 --> 00:15:50,079
we did

449
00:15:55,030 --> 00:15:52,720
evas on shuttle flights that were

450
00:15:56,550 --> 00:15:55,040
unexpected but from a station standpoint

451
00:15:57,829 --> 00:15:56,560
this is probably one of the the faster

452
00:16:00,790 --> 00:15:57,839
ones that we've had to put together and

453
00:16:03,030 --> 00:16:00,800
go out and affect the repair

454
00:16:04,710 --> 00:16:03,040
okay we can pursue the phone bridge now

455
00:16:07,829 --> 00:16:04,720
with a bunch of reporters there mark

456
00:16:09,189 --> 00:16:07,839
caro aviation week you're up first

457
00:16:12,150 --> 00:16:09,199
thank you

458
00:16:15,350 --> 00:16:12,160
what is your plan if um the first

459
00:16:17,670 --> 00:16:15,360
spacewalk doesn't

460
00:16:20,230 --> 00:16:17,680
locate the leak it becomes so elusive

461
00:16:23,509 --> 00:16:20,240
that you have to do some more

462
00:16:25,910 --> 00:16:23,519
work with walkers uh who does the who

463
00:16:27,590 --> 00:16:25,920

does that duty fall to then

464
00:16:30,389 --> 00:16:27,600
well we've been very clear about that

465
00:16:32,870 --> 00:16:30,399
that the the plan for this eba really is

466
00:16:36,150 --> 00:16:32,880
to see if we can identify the leak after

467
00:16:37,430 --> 00:16:36,160
the cva we probably will have run out of

468
00:16:39,269 --> 00:16:37,440
uh

469
00:16:40,790 --> 00:16:39,279
ammonia

470
00:16:43,030 --> 00:16:40,800
in the system to the point where we

471
00:16:46,150 --> 00:16:43,040
probably couldn't reliably expect to be

472
00:16:47,990 --> 00:16:46,160
able to id the leak so we're taking this

473
00:16:49,509 --> 00:16:48,000
opportunity to try to find the leak if

474
00:16:52,069 --> 00:16:49,519
we miss it then we'll

475
00:16:54,470 --> 00:16:52,079
uh the likely plan of action after that

476
00:16:56,870 --> 00:16:54,480
is just to have the crew call an eva

477
00:16:58,150 --> 00:16:56,880
we'll uh we'll let tom uh

478
00:16:59,910 --> 00:16:58,160
go ahead and go home we'll wait for the

479
00:17:01,110 --> 00:16:59,920
next crew to come out we'll devise a

480
00:17:02,150 --> 00:17:01,120
more

481
00:17:05,510 --> 00:17:02,160
thorough

482
00:17:07,510 --> 00:17:05,520
plan for trying to identify the anomaly

483
00:17:08,949 --> 00:17:07,520
again we're going to change out the plan

484
00:17:10,949 --> 00:17:08,959
is to change out the pump on this

485
00:17:13,990 --> 00:17:10,959
particular eva

486
00:17:16,150 --> 00:17:14,000
it's the most likely source is

487
00:17:17,429 --> 00:17:16,160
associated with the pump itself

488
00:17:19,909 --> 00:17:17,439

so there's a very good chance we'll get

489
00:17:21,429 --> 00:17:19,919
the changeout done uh what will solve

490
00:17:27,189 --> 00:17:21,439
this problem with the change out of the

491
00:17:27,199 --> 00:17:31,270
mark did you have a follow-up

492
00:17:36,070 --> 00:17:33,430
have you had to um

493
00:17:38,390 --> 00:17:36,080
power off anything or do you plan to i

494
00:17:40,150 --> 00:17:38,400
guess is the better question if if you

495
00:17:41,990 --> 00:17:40,160
can't find the leak well you have to

496
00:17:46,150 --> 00:17:42,000
start powering down

497
00:17:49,590 --> 00:17:47,430
the the uh

498
00:17:51,830 --> 00:17:49,600
you know with seven of eight channels uh

499
00:17:53,430 --> 00:17:51,840
you you get total power you get plenty

500
00:17:55,430 --> 00:17:53,440
of power and so we should be able to

501
00:17:57,669 --> 00:17:55,440
operate all of our normal loads it

502
00:18:00,470 --> 00:17:57,679
really becomes a channelization question

503
00:18:02,630 --> 00:18:00,480
about which which channels uh need which

504
00:18:04,310 --> 00:18:02,640
power based on uh what systems you're

505
00:18:05,590 --> 00:18:04,320
trying to draw on so

506
00:18:07,270 --> 00:18:05,600
i would tell you with seven of eight

507
00:18:09,669 --> 00:18:07,280
channels it's uh we'll operate all the

508
00:18:11,430 --> 00:18:09,679
nominal loads we need to operate

509
00:18:13,510 --> 00:18:11,440
and the ops team has to do a little bit

510
00:18:15,190 --> 00:18:13,520
more work to make that happen

511
00:18:17,270 --> 00:18:15,200
maybe turn off a heated shell heater

512
00:18:18,950 --> 00:18:17,280
there or here or there to make sure the

513
00:18:20,549 --> 00:18:18,960

loads are working but that's

514
00:18:23,350 --> 00:18:20,559
not uncommon

515
00:18:25,750 --> 00:18:23,360
work for the ops team to do

516
00:18:31,510 --> 00:18:25,760
okay next up is carl franzen from the

517
00:18:31,520 --> 00:18:35,350
carl are you there

518
00:18:38,070 --> 00:18:37,190
hello can you hear me hello go ahead

519
00:18:39,830 --> 00:18:38,080
carl

520
00:18:42,470 --> 00:18:39,840
sorry about that i was muted thanks for

521
00:18:45,270 --> 00:18:42,480
taking the time to uh speak to us about

522
00:18:47,669 --> 00:18:45,280
this operation today and the issue

523
00:18:49,830 --> 00:18:47,679
i i did want to ask about you know you

524
00:18:52,390 --> 00:18:49,840
you had pointed out that the estimate on

525
00:18:54,630 --> 00:18:52,400
uh as to you know if this week were

526
00:18:56,150 --> 00:18:54,640
allowed to continue um when it would

527
00:18:58,630 --> 00:18:56,160
cause the system to shut down

528
00:19:00,390 --> 00:18:58,640
automatically that yeah i believe you'd

529
00:19:01,430 --> 00:19:00,400
said something to the effect of uh that

530
00:19:03,750 --> 00:19:01,440
would occur

531
00:19:05,350 --> 00:19:03,760
either later this evening or tomorrow

532
00:19:06,310 --> 00:19:05,360
morning and so you went ahead and shut

533
00:19:08,870 --> 00:19:06,320
it off

534
00:19:10,630 --> 00:19:08,880
uh you know preventable preventatively

535
00:19:12,710 --> 00:19:10,640
is that is that correct do i have that

536
00:19:14,870 --> 00:19:12,720
do i understand that correctly

537
00:19:17,110 --> 00:19:14,880
yes you do it's um

538
00:19:19,430 --> 00:19:17,120

it doesn't save you a whole lot uh but

539
00:19:20,870 --> 00:19:19,440
once you shut the pump down uh we think

540
00:19:22,789 --> 00:19:20,880
we could just say we could have slowed

541
00:19:24,390 --> 00:19:22,799
the leak a little bit

542
00:19:26,070 --> 00:19:24,400
and saved us a bit more time but i'm

543
00:19:28,390 --> 00:19:26,080
talking you know

544
00:19:30,710 --> 00:19:28,400
a handful of hours perhaps so it wasn't

545
00:19:33,190 --> 00:19:30,720
a dramatic saving but we're trying to

546
00:19:35,270 --> 00:19:33,200
gain every bit of extra time we can get

547
00:19:37,430 --> 00:19:35,280
to get the crew outside and hope still

548
00:19:39,909 --> 00:19:37,440
act you know being able to spot the

549
00:19:42,390 --> 00:19:39,919
location of the leak itself

550
00:19:44,630 --> 00:19:42,400
and and again so so just to follow up on

551
00:19:46,710 --> 00:19:44,640
that i mean so if if if you're unable to

552
00:19:47,990 --> 00:19:46,720
fix the leak in a timely fashion you

553
00:19:50,470 --> 00:19:48,000
know uh

554
00:19:53,669 --> 00:19:50,480
there's a obviously a time limit on as

555
00:19:57,110 --> 00:19:53,679
to how long the uh uh ev

556
00:19:59,350 --> 00:19:57,120
uh a can can occur uh is

557
00:20:00,950 --> 00:19:59,360
what what happens then i mean is it what

558
00:20:02,470 --> 00:20:00,960
would i guess i'm asking not necessarily

559
00:20:04,549 --> 00:20:02,480
what action nasa would take but what

560
00:20:06,950 --> 00:20:04,559
would technically happen to the pump

561
00:20:08,789 --> 00:20:06,960
once once all the ammonia you know runs

562
00:20:10,870 --> 00:20:08,799
out i mean what what would happen then

563
00:20:12,789 --> 00:20:10,880

well now the the system is shut down and

564
00:20:15,190 --> 00:20:12,799
it's in a passive state so at this point

565
00:20:17,830 --> 00:20:15,200
it just leaks ammonia to the and it'll

566
00:20:20,149 --> 00:20:17,840
just keep leaking it'll take

567
00:20:21,909 --> 00:20:20,159
many many many days to completely leak

568
00:20:24,310 --> 00:20:21,919
out of all the ammonia but once you get

569
00:20:26,070 --> 00:20:24,320
pneumonia in a in a kind of a two phase

570
00:20:27,110 --> 00:20:26,080
state or even just a vapor state over

571
00:20:28,870 --> 00:20:27,120
time

572
00:20:31,430 --> 00:20:28,880
you can't really run it so you reach a

573
00:20:33,990 --> 00:20:31,440
point in the system

574
00:20:36,070 --> 00:20:34,000
accumulator where once we get to a

575
00:20:38,549 --> 00:20:36,080
certain level the accumulator

576
00:20:40,870 --> 00:20:38,559
four percent is what we use then the the

577
00:20:43,190 --> 00:20:40,880
system will shut itself down uh and

578
00:20:45,350 --> 00:20:43,200
that's that's the point where we we want

579
00:20:47,590 --> 00:20:45,360
to make sure the pump is off because at

580
00:20:50,230 --> 00:20:47,600
that point you'll cavitate the pump and

581
00:20:51,909 --> 00:20:50,240
potentially damage it so that's already

582
00:20:54,149 --> 00:20:51,919
been done though so from a protect the

583
00:20:56,470 --> 00:20:54,159
pump standpoint we're in a in a safe

584
00:20:59,830 --> 00:20:56,480
condition for the pump and and it can

585
00:21:01,750 --> 00:20:59,840
stay like this indefinitely

586
00:21:03,669 --> 00:21:01,760
okay next up is seth barenstein

587
00:21:05,350 --> 00:21:03,679
associated press

588
00:21:07,830 --> 00:21:05,360

yes thank you for doing this i have uh

589
00:21:10,710 --> 00:21:07,840
one question and a follow-up um mike

590
00:21:12,630 --> 00:21:10,720
just in general if you've um

591
00:21:14,310 --> 00:21:12,640
let's say you cannot fix this and you're

592
00:21:15,750 --> 00:21:14,320
down to the seven channels you said you

593
00:21:18,470 --> 00:21:15,760
have enough power you know you can do

594
00:21:21,110 --> 00:21:18,480
the whole system i guess

595
00:21:23,029 --> 00:21:21,120
this is a two-part question is it

596
00:21:25,350 --> 00:21:23,039
possible in a later it sounds like it's

597
00:21:27,510 --> 00:21:25,360
possible on later eva months or weeks

598
00:21:29,110 --> 00:21:27,520
down the line to still fix it after it

599
00:21:30,549 --> 00:21:29,120
goes down

600
00:21:33,669 --> 00:21:30,559
i mean in other words this isn't your

601
00:21:37,110 --> 00:21:33,679
last chance and then secondly if this is

602
00:21:38,710 --> 00:21:37,120
if this is never fixed what's the fewest

603
00:21:40,230 --> 00:21:38,720
number of channels you need i mean

604
00:21:42,149 --> 00:21:40,240
what's the minimum requirement and after

605
00:21:44,310 --> 00:21:42,159
which if it's so so much if you're under

606
00:21:46,950 --> 00:21:44,320
that you know you have to look at you

607
00:21:48,710 --> 00:21:46,960
know drastic actions

608
00:21:50,390 --> 00:21:48,720
uh well let's see the first the first

609
00:21:53,270 --> 00:21:50,400
answer is yes we've got

610
00:21:54,870 --> 00:21:53,280
many more ideas up our sleeves um

611
00:21:56,470 --> 00:21:54,880
it's uh you

612
00:21:59,430 --> 00:21:56,480
we're trying to apostate what the leak

613
00:22:02,230 --> 00:21:59,440

source is typically it's moving parts

614
00:22:03,669 --> 00:22:02,240
that eventually fail or you get an mmod

615
00:22:05,510 --> 00:22:03,679
strike

616
00:22:07,750 --> 00:22:05,520
a lot of the lines are buried underneath

617
00:22:08,789 --> 00:22:07,760
the iea so it's hard to believe an mmod

618
00:22:10,789 --> 00:22:08,799
strike

619
00:22:13,750 --> 00:22:10,799
but we do have been discussing for years

620
00:22:16,390 --> 00:22:13,760
and have components uh available for

621
00:22:18,710 --> 00:22:16,400
actually repairing hoses tubes if they

622
00:22:22,230 --> 00:22:18,720
in fact have mmod damage

623
00:22:23,830 --> 00:22:22,240
and we have a very creative team so

624
00:22:25,590 --> 00:22:23,840
we've got a lot of opportunities to

625
00:22:26,630 --> 00:22:25,600
recover this system if it's not the pump

626
00:22:29,430 --> 00:22:26,640
itself

627
00:22:30,789 --> 00:22:29,440
that's the cause of the anomaly

628
00:22:32,630 --> 00:22:30,799
to answer your other question i'd have

629
00:22:34,710 --> 00:22:32,640
to get back to you exactly i know we've

630
00:22:35,909 --> 00:22:34,720
done this analysis several times seven

631
00:22:38,310 --> 00:22:35,919
requires

632
00:22:40,470 --> 00:22:38,320
a channelization i think once you go

633
00:22:42,470 --> 00:22:40,480
below seven we probably have to manage

634
00:22:44,630 --> 00:22:42,480
loads a little more dramatically meaning

635
00:22:46,470 --> 00:22:44,640
we probably can't operate everything

636
00:22:48,310 --> 00:22:46,480
when we want to

637
00:22:50,390 --> 00:22:48,320
but we will we will you know

638
00:22:53,430 --> 00:22:50,400

sequentially operate some things based

639
00:22:56,230 --> 00:22:53,440
on loads on channels so it becomes a

640
00:22:58,390 --> 00:22:56,240
much larger operational challenge if we

641
00:23:00,710 --> 00:22:58,400
lose the the next channel system and i'd

642
00:23:03,190 --> 00:23:00,720
say somewhere in that phase then we'll

643
00:23:05,350 --> 00:23:03,200
start having to manage

644
00:23:07,909 --> 00:23:05,360
closer how we operate the research today

645
00:23:09,270 --> 00:23:07,919
we're not really bound by that and so

646
00:23:10,710 --> 00:23:09,280
it's not a challenge for us so in the

647
00:23:12,870 --> 00:23:10,720
future we'd probably have to look closer

648
00:23:14,149 --> 00:23:12,880
at it i don't know if we'd have to not

649
00:23:15,830 --> 00:23:14,159
do research

650
00:23:17,190 --> 00:23:15,840
as much research as we've been doing but

651
00:23:19,190 --> 00:23:17,200
it would certainly be much more

652
00:23:20,950 --> 00:23:19,200
challenging for our operations friends

653
00:23:22,630 --> 00:23:20,960
to have to manage the loads across the

654
00:23:24,950 --> 00:23:22,640
the different challenges channels at

655
00:23:27,350 --> 00:23:24,960
that point

656
00:23:29,909 --> 00:23:27,360
is um is this the

657
00:23:31,990 --> 00:23:29,919
uh and maybe more for norm this is a you

658
00:23:34,149 --> 00:23:32,000
know you have a 24 hour basically turn

659
00:23:36,310 --> 00:23:34,159
around here between the time

660
00:23:37,669 --> 00:23:36,320
the problem popped up in the time you're

661
00:23:40,230 --> 00:23:37,679
you're going out or maybe a little bit

662
00:23:41,190 --> 00:23:40,240
more just putting in this in range of

663
00:23:43,750 --> 00:23:41,200

past

664
00:23:44,789 --> 00:23:43,760
sort of impromptu space walks is this

665
00:23:50,390 --> 00:23:44,799
the

666
00:23:52,149 --> 00:23:50,400
short notice you know you know can you

667
00:23:53,029 --> 00:23:52,159
give me a sense of context of this and

668
00:23:55,830 --> 00:23:53,039
other

669
00:23:58,070 --> 00:23:55,840
repair i mean most evas are long charged

670
00:24:00,390 --> 00:23:58,080
and long practice and everything this

671
00:24:01,110 --> 00:24:00,400
isn't is there been anything quite like

672
00:24:02,870 --> 00:24:01,120
this

673
00:24:05,350 --> 00:24:02,880
in terms of suddenness

674
00:24:07,029 --> 00:24:05,360
on the station program uh during an

675
00:24:09,190 --> 00:24:07,039
increment uh

676
00:24:11,510 --> 00:24:09,200
i think this is precedent setting

677
00:24:14,149 --> 00:24:11,520
uh from us when you back up and you look

678
00:24:16,230 --> 00:24:14,159
at the assembly flights that we've had

679
00:24:18,230 --> 00:24:16,240
and uh some of the issues that we've had

680
00:24:20,390 --> 00:24:18,240
to go address

681
00:24:22,149 --> 00:24:20,400
you might go into a shuttle flight

682
00:24:24,470 --> 00:24:22,159
with a station assembly mission thinking

683
00:24:27,190 --> 00:24:24,480
that you were going to do three evas and

684
00:24:29,190 --> 00:24:27,200
then based on circumstances that

685
00:24:31,029 --> 00:24:29,200
presented themselves you may have to add

686
00:24:33,110 --> 00:24:31,039
a fourth eva or change the content of

687
00:24:35,909 --> 00:24:33,120
one of the other evas so we have that

688
00:24:37,990 --> 00:24:35,919

experience from from our shuttle

689
00:24:40,470 --> 00:24:38,000
station joint mission

690
00:24:41,750 --> 00:24:40,480
days in the past from a purely station

691
00:24:43,029 --> 00:24:41,760
perspective

692
00:24:45,190 --> 00:24:43,039
during an increment i would say this is

693
00:24:47,190 --> 00:24:45,200
precedent setting

694
00:24:50,230 --> 00:24:47,200
okay we go to miriam cramer from

695
00:24:52,870 --> 00:24:52,070
hi there thanks so much for doing this

696
00:24:54,950 --> 00:24:52,880
um

697
00:24:57,029 --> 00:24:54,960
miriam famous space.com i was just

698
00:24:58,710 --> 00:24:57,039
curious uh i'm sorry if you've answered

699
00:25:00,950 --> 00:24:58,720
this already but what could have caused

700
00:25:02,149 --> 00:25:00,960
this um is the idea that it's still

701
00:25:03,909 --> 00:25:02,159
probably

702
00:25:05,750 --> 00:25:03,919
micrometeorites or could it be something

703
00:25:07,190 --> 00:25:05,760
else thanks

704
00:25:09,269 --> 00:25:07,200
well i guess that's what we're trying to

705
00:25:10,230 --> 00:25:09,279
figure out

706
00:25:11,510 --> 00:25:10,240
first of all you don't know if it's

707
00:25:13,269 --> 00:25:11,520
related to the leaks that we've been

708
00:25:15,110 --> 00:25:13,279
dealing with this may just be masking

709
00:25:16,470 --> 00:25:15,120
the leak we already have so it's it's

710
00:25:18,630 --> 00:25:16,480
hard to know

711
00:25:21,190 --> 00:25:18,640
mmod is certainly a concern although

712
00:25:24,149 --> 00:25:21,200
many of the the

713
00:25:26,230 --> 00:25:24,159

lines are underneath the iea the ia is

714
00:25:27,750 --> 00:25:26,240
the platform that this pump is sitting

715
00:25:29,669 --> 00:25:27,760
on top of as long as well as the

716
00:25:30,950 --> 00:25:29,679
batteries and the battery chargers that

717
00:25:33,190 --> 00:25:30,960
are sitting up there as well so this

718
00:25:34,710 --> 00:25:33,200
thing is full of orus

719
00:25:37,029 --> 00:25:34,720
or components

720
00:25:38,549 --> 00:25:37,039
sitting on top of a relatively large

721
00:25:39,830 --> 00:25:38,559
plate

722
00:25:41,590 --> 00:25:39,840
and so

723
00:25:43,269 --> 00:25:41,600
an mmod strike to get to some of those

724
00:25:44,950 --> 00:25:43,279
tubes would have to go through an oru in

725
00:25:46,950 --> 00:25:44,960
which case the oru would probably tell

726
00:25:48,390 --> 00:25:46,960
us it was it was experienced a problem

727
00:25:51,430 --> 00:25:48,400
and then get through the plate and into

728
00:25:54,310 --> 00:25:51,440
the tube so mmod at the tube level is

729
00:25:56,230 --> 00:25:54,320
less likely mot of the hit of the pump

730
00:25:57,990 --> 00:25:56,240
is is possible we may have been dealing

731
00:26:01,909 --> 00:25:58,000
with a seal issue

732
00:26:04,789 --> 00:26:01,919
there's four face seals across these two

733
00:26:07,190 --> 00:26:04,799
qd's that norm mentioned to you earlier

734
00:26:08,549 --> 00:26:07,200
any one of which over time perhaps could

735
00:26:09,590 --> 00:26:08,559
have been leaking and slowly gotten

736
00:26:11,750 --> 00:26:09,600
worse

737
00:26:13,350 --> 00:26:11,760
if that's the case the ceiling the seals

738
00:26:15,350 --> 00:26:13,360

themselves the teflon seals themselves

739
00:26:18,070 --> 00:26:15,360
are on the on the oru so when we change

740
00:26:20,310 --> 00:26:18,080
out the pump we'll fix that problem

741
00:26:22,230 --> 00:26:20,320
there's not many moving parts that are

742
00:26:24,470 --> 00:26:22,240
exposed to the outside environment you

743
00:26:29,590 --> 00:26:24,480
just see the pump and all of the

744
00:26:33,830 --> 00:26:31,909
flex hoses inside the pump box itself

745
00:26:36,710 --> 00:26:33,840
but it's sealed up so if any of that had

746
00:26:39,190 --> 00:26:36,720
failed it wouldn't it wouldn't

747
00:26:40,950 --> 00:26:39,200
show itself as an external leak so

748
00:26:43,590 --> 00:26:40,960
uh you know really you're dealing with

749
00:26:46,789 --> 00:26:43,600
uh some sort of i think some sort of

750
00:26:47,990 --> 00:26:46,799
failure seal failure more likely mmod is

751
00:26:50,549 --> 00:26:48,000
possible

752
00:26:51,909 --> 00:26:50,559
uh and then just a spurious crack of

753
00:26:54,230 --> 00:26:51,919
some sort that

754
00:26:55,990 --> 00:26:54,240
that's that when all these years before

755
00:26:59,750 --> 00:26:56,000
failed is is

756
00:27:01,590 --> 00:26:59,760
is possible but i think highly unlikely

757
00:27:04,950 --> 00:27:01,600
thank you okay we're going to move to

758
00:27:07,190 --> 00:27:04,960
ken kramer of universe today

759
00:27:09,190 --> 00:27:07,200
hi thanks for taking my question um two

760
00:27:11,669 --> 00:27:09,200
quick questions i was wondering um this

761
00:27:14,710 --> 00:27:11,679
this pump assembly if you do change it

762
00:27:16,470 --> 00:27:14,720
out do you have additional spares

763
00:27:19,430 --> 00:27:16,480

and could you bring up additional

764
00:27:21,190 --> 00:27:19,440
equipment also on cygnus and dragon if

765
00:27:22,230 --> 00:27:21,200
you if you find you need other spares

766
00:27:24,549 --> 00:27:22,240
thanks

767
00:27:26,710 --> 00:27:24,559
yeah we have three spare pumps on orbit

768
00:27:28,950 --> 00:27:26,720
so we're in good shape and the spacex

769
00:27:31,430 --> 00:27:28,960
vehicle and the htv vehicle carry

770
00:27:33,110 --> 00:27:31,440
external orus this is relatively large

771
00:27:34,870 --> 00:27:33,120
about 260 pounds so i probably couldn't

772
00:27:36,950 --> 00:27:34,880
bring it up inside sometimes we've done

773
00:27:38,630 --> 00:27:36,960
that but certainly spacex and htv

774
00:27:40,630 --> 00:27:38,640
vehicles could take up another spare

775
00:27:43,990 --> 00:27:40,640
when the time comes

776
00:27:46,630 --> 00:27:44,000
but clearly it's not urgent

777
00:27:50,070 --> 00:27:46,640
okay next up rebecca boyle from popular

778
00:27:54,149 --> 00:27:52,070
hi thanks one of my questions was just

779
00:27:56,310 --> 00:27:54,159
answered but i was asked is there any

780
00:27:58,470 --> 00:27:56,320
science experiments that are in jeopardy

781
00:28:01,750 --> 00:27:58,480
or in close proximity to this particular

782
00:28:05,830 --> 00:28:01,760
pump that might need to be moved or shut

783
00:28:09,110 --> 00:28:07,190
not that we've

784
00:28:10,789 --> 00:28:09,120
mentioned it's really a small amount of

785
00:28:11,990 --> 00:28:10,799
money coming out it's very end of the

786
00:28:13,669 --> 00:28:12,000
trust

787
00:28:14,789 --> 00:28:13,679
so from an environment standpoint this

788
00:28:16,470 --> 00:28:14,799

really hasn't

789
00:28:19,750 --> 00:28:16,480
put any of the

790
00:28:21,350 --> 00:28:19,760
any of the experiments at risk

791
00:28:22,630 --> 00:28:21,360
many of them actually on the starboard

792
00:28:26,470 --> 00:28:22,640
side anyway

793
00:28:29,669 --> 00:28:27,909
i guess just like a follow-up will you

794
00:28:31,830 --> 00:28:29,679
be able to determine or do you think you

795
00:28:34,310 --> 00:28:31,840
might be able to determine what caused

796
00:28:35,990 --> 00:28:34,320
this if it was some sort of level debris

797
00:28:37,669 --> 00:28:36,000
or a craft will that they be able to

798
00:28:40,470 --> 00:28:37,679
figure that out

799
00:28:41,909 --> 00:28:40,480
if we can find it and see it then

800
00:28:43,510 --> 00:28:41,919
absolutely i think we could probably

801
00:28:47,110 --> 00:28:43,520
figure that out

802
00:28:50,630 --> 00:28:47,120
you're talking very very very small hole

803
00:28:56,230 --> 00:28:54,310
mmods make kind of a unique

804
00:28:58,230 --> 00:28:56,240
signature when they're done they usually

805
00:28:59,909 --> 00:28:58,240
leave raised up lips around the outer

806
00:29:01,669 --> 00:28:59,919
edges

807
00:29:03,190 --> 00:29:01,679
cracks do kind of show themselves a

808
00:29:05,590 --> 00:29:03,200
little bit differently but if we can

809
00:29:07,190 --> 00:29:05,600
visually identify it we probably could

810
00:29:09,590 --> 00:29:07,200
determine

811
00:29:11,269 --> 00:29:09,600
whether it was an mmod hit or not

812
00:29:13,269 --> 00:29:11,279
it would be challenging but but i would

813
00:29:15,669 --> 00:29:13,279

say probably so the hard part is just

814
00:29:18,870 --> 00:29:15,679
going to be defined to identify the

815
00:29:21,029 --> 00:29:18,880
location if it's not in the pump

816
00:29:23,510 --> 00:29:21,039
okay next up is jeff bromfield from

817
00:29:25,269 --> 00:29:23,520
national public radio

818
00:29:29,909 --> 00:29:25,279
oh hi um

819
00:29:31,669 --> 00:29:29,919
i guess so if you if you can't

820
00:29:34,149 --> 00:29:31,679
if you can't repair this i mean do you

821
00:29:35,909 --> 00:29:34,159
feel comfortable leaving the the crew

822
00:29:38,789 --> 00:29:35,919
compliment on orbit and continuing

823
00:29:40,630 --> 00:29:38,799
everything as as it is absolutely that's

824
00:29:42,070 --> 00:29:40,640
why we have eight power systems so we

825
00:29:43,430 --> 00:29:42,080
have the redundancy we need to keep

826
00:29:44,870 --> 00:29:43,440
operating while we

827
00:29:46,549 --> 00:29:44,880
get the power systems back and you know

828
00:29:48,630 --> 00:29:46,559
we've been down a power system before

829
00:29:51,510 --> 00:29:48,640
and uh like we had a couple of

830
00:29:52,870 --> 00:29:51,520
challenges with with two power systems

831
00:29:54,870 --> 00:29:52,880
at the same time for a little while

832
00:29:57,110 --> 00:29:54,880
there last year so

833
00:29:59,909 --> 00:29:57,120
this is this is the system is built this

834
00:30:01,909 --> 00:29:59,919
way to give us the redundancy so we can

835
00:30:03,590 --> 00:30:01,919
have problems have time to work problems

836
00:30:09,029 --> 00:30:03,600
i mean i'll continue to do the research

837
00:30:14,310 --> 00:30:12,789
okay on to alan boyle from nbc news

838
00:30:17,750 --> 00:30:14,320

hi i just had a couple of quick

839
00:30:20,230 --> 00:30:17,760
follow-up questions uh one was uh i

840
00:30:23,350 --> 00:30:20,240
didn't hear how long this spacewalk was

841
00:30:25,750 --> 00:30:23,360
expected to take uh other contingencies

842
00:30:27,669 --> 00:30:25,760
could last longer shorter and then also

843
00:30:31,590 --> 00:30:27,679
just ken kramer's question about what

844
00:30:34,230 --> 00:30:31,600
the ammonia supply on board was like

845
00:30:37,110 --> 00:30:34,240
we'll see i'll cover the first one the

846
00:30:38,230 --> 00:30:37,120
the eva is planned for around 6 hours 15

847
00:30:40,710 --> 00:30:38,240
minutes

848
00:30:42,389 --> 00:30:40,720
and we have consumables to support that

849
00:30:44,470 --> 00:30:42,399
and likely consumables to go a little

850
00:30:46,630 --> 00:30:44,480
bit longer if we need to

851
00:30:48,789 --> 00:30:46,640
typically in the eva once we get going

852
00:30:51,190 --> 00:30:48,799
we get a better understanding of the

853
00:30:52,950 --> 00:30:51,200
crew's metabolic rates which

854
00:30:54,630 --> 00:30:52,960
results in how much carbon dioxide is

855
00:30:56,310 --> 00:30:54,640
taken out of the air

856
00:30:58,149 --> 00:30:56,320
that they breathe and that's really

857
00:30:59,590 --> 00:30:58,159
typically our limiting factor so once we

858
00:31:01,269 --> 00:30:59,600
get going

859
00:31:03,669 --> 00:31:01,279
we'll reassess that and that tells us

860
00:31:05,990 --> 00:31:03,679
how much time we have after six hours

861
00:31:07,590 --> 00:31:06,000
and 15 minutes but right now what we

862
00:31:09,029 --> 00:31:07,600
think can get done

863
00:31:10,870 --> 00:31:09,039

what we need to get done can get

864
00:31:13,909 --> 00:31:10,880
affected in about six hours and 15

865
00:31:16,789 --> 00:31:13,919
minutes maybe 6 30.

866
00:31:20,070 --> 00:31:16,799
and the ammonia question the the way

867
00:31:23,269 --> 00:31:20,080
we're set up is the the port side

868
00:31:26,870 --> 00:31:23,279
central system tanks will re be used to

869
00:31:29,269 --> 00:31:26,880
recharge the port side system and and

870
00:31:31,029 --> 00:31:29,279
the starboard central system would would

871
00:31:32,950 --> 00:31:31,039
take care of the starboard power systems

872
00:31:34,310 --> 00:31:32,960
if we had to ever fill them

873
00:31:36,310 --> 00:31:34,320
so this is on the port side the port

874
00:31:38,230 --> 00:31:36,320
side of money tanks has about 500 pounds

875
00:31:39,669 --> 00:31:38,240
left in them they hold about 600 total

876
00:31:41,669 --> 00:31:39,679
so they're pretty full

877
00:31:43,190 --> 00:31:41,679
it needs about 100 pounds to fully fill

878
00:31:44,870 --> 00:31:43,200
the system and so we've got plenty

879
00:31:47,669 --> 00:31:44,880
ammonia actually the

880
00:31:49,509 --> 00:31:47,679
bigger challenge and it's not dramatic

881
00:31:51,029 --> 00:31:49,519
uh challenge but it's a it's a challenge

882
00:31:52,950 --> 00:31:51,039
is the amount of nitrogen we have it

883
00:31:55,350 --> 00:31:52,960
takes a certain amount of nitrogen from

884
00:31:57,830 --> 00:31:55,360
the nitrogen tanks to push the ammonia

885
00:31:59,029 --> 00:31:57,840
out that tank on that side is getting a

886
00:32:01,029 --> 00:31:59,039
little low

887
00:32:02,789 --> 00:32:01,039
we do have spare tanks full of nitrogen

888
00:32:05,029 --> 00:32:02,799

so we could do that i suspect we

889
00:32:06,630 --> 00:32:05,039
wouldn't need to do that to do this fill

890
00:32:08,549 --> 00:32:06,640
if we change out

891
00:32:09,830 --> 00:32:08,559
uh the pump now and that turns out to be

892
00:32:12,310 --> 00:32:09,840
the source of

893
00:32:14,230 --> 00:32:12,320
the the leak i suspect will recharge the

894
00:32:15,990 --> 00:32:14,240
system without needing to change out

895
00:32:18,389 --> 00:32:16,000
nitrogen tanks

896
00:32:25,269 --> 00:32:18,399
thank you okay on to carrie sheridan

897
00:32:30,149 --> 00:32:26,830
carrie are you

898
00:32:33,029 --> 00:32:30,159
there okay we'll skip on to james dean

899
00:32:34,950 --> 00:32:33,039
from florida today

900
00:32:36,470 --> 00:32:34,960
thank you sorry if i missed this what is

901
00:32:39,110 --> 00:32:36,480
the approximate

902
00:32:40,950 --> 00:32:39,120
size and mass of the box that's being

903
00:32:43,029 --> 00:32:40,960
replaced

904
00:32:45,269 --> 00:32:43,039
ah the dimensions evade me right this

905
00:32:48,870 --> 00:32:45,279
second normally remember it's 260 pounds

906
00:32:51,350 --> 00:32:48,880
is the pounds of is the pounds 260

907
00:32:52,549 --> 00:32:51,360
pounds is the weight of the uh of the

908
00:32:56,549 --> 00:32:52,559
box

909
00:32:59,110 --> 00:32:56,559
uh i it's uh it's hard it's it's large

910
00:33:01,110 --> 00:32:59,120
it's a large box

911
00:33:02,870 --> 00:33:01,120
okay so um

912
00:33:04,710 --> 00:33:02,880
this isn't like the type of a box or

913
00:33:06,310 --> 00:33:04,720

hardware that that you'd ever consider

914
00:33:08,389 --> 00:33:06,320
taking back to the ground for further

915
00:33:11,110 --> 00:33:08,399
analysis too big

916
00:33:12,230 --> 00:33:11,120
um

917
00:33:14,310 --> 00:33:12,240
uh

918
00:33:16,149 --> 00:33:14,320
the answer is i probably would not bring

919
00:33:18,389 --> 00:33:16,159
it home correct the question you're

920
00:33:21,190 --> 00:33:18,399
asking is could i bring it inside i

921
00:33:23,269 --> 00:33:21,200
wouldn't bring a leaking ammonia system

922
00:33:25,590 --> 00:33:23,279
inside the iss and that's the only way

923
00:33:27,430 --> 00:33:25,600
to bring it home so size wise while i

924
00:33:28,549 --> 00:33:27,440
might be able to squeeze it inside if i

925
00:33:30,230 --> 00:33:28,559
wanted to

926
00:33:34,310 --> 00:33:30,240
i wouldn't want to bring in a system

927
00:33:37,590 --> 00:33:35,990
okay thanks you couldn't use it yeah

928
00:33:39,830 --> 00:33:37,600
okay i thought maybe you can't use the

929
00:33:41,190 --> 00:33:39,840
arm or something yeah well i can i can

930
00:33:43,110 --> 00:33:41,200
get it but i don't have a way to bring

931
00:33:44,950 --> 00:33:43,120
unpressurized components home in an

932
00:33:46,549 --> 00:33:44,960
unpressurized environment the only thing

933
00:33:48,389 --> 00:33:46,559
we have to return

934
00:33:49,909 --> 00:33:48,399
today is through a pressurized system so

935
00:33:52,789 --> 00:33:49,919
i have to eventually bring it inside to

936
00:33:57,990 --> 00:33:55,190
okay and finally on the list bill

937
00:33:59,750 --> 00:33:58,000
harwood cbs news

938
00:34:00,710 --> 00:33:59,760

yeah thank you very much um mike you

939
00:34:02,710 --> 00:34:00,720
know

940
00:34:04,149 --> 00:34:02,720
help me characterize this in your mind

941
00:34:05,669 --> 00:34:04,159
anyway you know it's like you said that

942
00:34:08,230 --> 00:34:05,679
you can get along fine with seven power

943
00:34:10,470 --> 00:34:08,240
channels uh crew's not in any danger the

944
00:34:11,990 --> 00:34:10,480
soyuz is going to depart on time

945
00:34:13,349 --> 00:34:12,000
but obviously

946
00:34:15,270 --> 00:34:13,359
i'm just trying to understand if this is

947
00:34:17,109 --> 00:34:15,280
a serious issue a critical thing you

948
00:34:18,790 --> 00:34:17,119
need to get fixed if it's more of an

949
00:34:20,629 --> 00:34:18,800
annoyance at this point would you put it

950
00:34:22,310 --> 00:34:20,639
in whatever terms you like to help me

951
00:34:23,669 --> 00:34:22,320
understand the seriousness of this

952
00:34:25,750 --> 00:34:23,679
problem thank you

953
00:34:27,669 --> 00:34:25,760
well bill it's it's uh i would tell you

954
00:34:29,510 --> 00:34:27,679
right this very instant because i don't

955
00:34:31,270 --> 00:34:29,520
know any better i'd tell you it's a it's

956
00:34:34,550 --> 00:34:31,280
an annoyance because of all the work we

957
00:34:36,389 --> 00:34:34,560
have to do to to work around the problem

958
00:34:37,669 --> 00:34:36,399
after the eva if we change out the pump

959
00:34:39,349 --> 00:34:37,679
and the pump's not the cause of the

960
00:34:42,069 --> 00:34:39,359
problem then we've got a it's going to

961
00:34:43,909 --> 00:34:42,079
take us quite a bit of time to to

962
00:34:45,750 --> 00:34:43,919
i imagine it will take us quite a bit of

963
00:34:47,829 --> 00:34:45,760

time to figure out where this leak could

964
00:34:50,470 --> 00:34:47,839
be identify it

965
00:34:51,909 --> 00:34:50,480
isolate it overcome it fix it however

966
00:34:53,270 --> 00:34:51,919
we're going to

967
00:34:57,589 --> 00:34:53,280
and then

968
00:34:59,030 --> 00:34:57,599
have to be down one power system for a

969
00:35:01,190 --> 00:34:59,040
long period of time that is a

970
00:35:02,550 --> 00:35:01,200
significant impact to us and it's a

971
00:35:04,950 --> 00:35:02,560
significant impact because the next

972
00:35:07,510 --> 00:35:04,960
failure is so much work uh on the ops

973
00:35:09,670 --> 00:35:07,520
team and and could potentially have

974
00:35:11,510 --> 00:35:09,680
impact to research i think i think we

975
00:35:14,069 --> 00:35:11,520
would we'd be really stressed in the ops

976
00:35:16,950 --> 00:35:14,079
team uh during the period that the the

977
00:35:18,150 --> 00:35:16,960
other channel was down

978
00:35:21,589 --> 00:35:18,160
i think

979
00:35:23,030 --> 00:35:21,599
probably stay pretty close to getting

980
00:35:24,550 --> 00:35:23,040
all the research done that we needed to

981
00:35:26,790 --> 00:35:24,560
do but it would be a big challenge for

982
00:35:28,550 --> 00:35:26,800
the team and so we'd have to quickly

983
00:35:30,630 --> 00:35:28,560
perhaps more quickly than we otherwise

984
00:35:32,790 --> 00:35:30,640
would have to recover whatever was

985
00:35:34,950 --> 00:35:32,800
causing that next channel to be down and

986
00:35:37,349 --> 00:35:34,960
so that in and of itself has an impact

987
00:35:39,829 --> 00:35:37,359
to research so i would tell you why it's

988
00:35:42,550 --> 00:35:39,839

not critical from a from a safety

989
00:35:44,069 --> 00:35:42,560
standpoint it becomes

990
00:35:45,430 --> 00:35:44,079
if we have to live with this channel

991
00:35:46,630 --> 00:35:45,440
down for a long period of time while

992
00:35:48,150 --> 00:35:46,640
sorted out would very definitely is

993
00:35:50,150 --> 00:35:48,160
going to have impacts to research from

994
00:35:51,910 --> 00:35:50,160
time to time is if we lose the next

995
00:35:59,190 --> 00:35:51,920
power system

996
00:36:04,390 --> 00:36:02,470
i lost bill bill you still there

997
00:36:05,750 --> 00:36:04,400
okay he must have been satisfied that

998
00:36:07,430 --> 00:36:05,760
night

999
00:36:10,230 --> 00:36:07,440
or i completely baffled him one of them

1000
00:36:11,990 --> 00:36:10,240
completely baffled it all right so uh

1001
00:36:14,710 --> 00:36:12,000
having wrapped up the questions a couple

1002
00:36:16,470 --> 00:36:14,720
of notes before we close uh one more box

1003
00:36:18,550 --> 00:36:16,480
to check in this regard the iss mission

1004
00:36:20,870 --> 00:36:18,560
management team will be meeting in a

1005
00:36:22,870 --> 00:36:20,880
formal session later today to give its

1006
00:36:25,670 --> 00:36:22,880
formal ratification for tomorrow's

1007
00:36:27,349 --> 00:36:25,680
spacewalk uh assuming that all happens

1008
00:36:30,270 --> 00:36:27,359
or once that meeting is completed we'll

1009
00:36:32,390 --> 00:36:30,280
update the nasa website at

1010
00:36:34,310 --> 00:36:32,400
www.nasa.gov with the latest information

1011
00:36:36,150 --> 00:36:34,320
following their meeting

1012
00:36:38,310 --> 00:36:36,160
uh it's worth noting also that chris

1013
00:36:40,710 --> 00:36:38,320

cassidy will be ev1 tomorrow wearing the

1014
00:36:43,270 --> 00:36:40,720
suit bearing the red stripes tom

1015
00:36:45,910 --> 00:36:43,280
marshburn ev2 wearing the suit with no

1016
00:36:49,109 --> 00:36:45,920
stripes they've each had three evas to

1017
00:36:52,390 --> 00:36:49,119
their credit all conducted on sts-127

1018
00:36:54,069 --> 00:36:52,400
and two with each other on that flight

1019
00:36:55,510 --> 00:36:54,079
assuming the spacewalk is approved for

1020
00:36:58,550 --> 00:36:55,520
tomorrow we'll begin our coverage on

1021
00:37:00,550 --> 00:36:58,560
nasa television at 6 a.m central time 7

1022
00:37:03,510 --> 00:37:00,560
a.m eastern time the spacewalk as

1023
00:37:07,270 --> 00:37:03,520
mentioned earlier will begin around 7 15

1024
00:37:09,589 --> 00:37:07,280
a.m central time 8 15 a.m eastern time

1025
00:37:11,910 --> 00:37:09,599
and after the spacewalk we'll have a

1026
00:37:13,990 --> 00:37:11,920
post spacewalk briefing with mike

1027
00:37:16,630 --> 00:37:14,000
suffradini and the team that will be

1028
00:37:19,510 --> 00:37:16,640
executing the spacewalk on saturday that

1029
00:37:21,430 --> 00:37:19,520
will be no earlier than about 3 30 p.m

1030
00:37:22,470 --> 00:37:21,440
central time tomorrow perhaps a bit

1031
00:37:24,630 --> 00:37:22,480
later

1032
00:37:25,990 --> 00:37:24,640
so with that we'll wrap it up for today

1033
00:37:28,069 --> 00:37:26,000
thanks for tuning in and we'll see you