



1
00:00:08,070 --> 00:00:05,590
well good day everybody and welcome to

2
00:00:09,830 --> 00:00:08,080
nasa's johnson space center for our

3
00:00:11,509 --> 00:00:09,840
pre-flight briefings for the final

4
00:00:13,190 --> 00:00:11,519
flight of the space shuttle program

5
00:00:14,910 --> 00:00:13,200
atlantis's mission to the international

6
00:00:17,109 --> 00:00:14,920
space station

7
00:00:19,269 --> 00:00:17,119
sts-135 have a series of briefings for

8
00:00:21,750 --> 00:00:19,279
you today the usual set of briefings to

9
00:00:24,070 --> 00:00:21,760
lay out the entire mission for you ahead

10
00:00:26,310 --> 00:00:24,080
of the launch which is scheduled for

11
00:00:27,830 --> 00:00:26,320
next friday july 8th

12
00:00:29,750 --> 00:00:27,840
the first briefing is their usual

13
00:00:32,150 --> 00:00:29,760

program overview briefing with the two

14

00:00:34,549 --> 00:00:32,160

program managers john shannon is the

15

00:00:37,190 --> 00:00:34,559

program manager for the space shuttle

16

00:00:38,950 --> 00:00:37,200

and uh mike suffordini is the program

17

00:00:41,110 --> 00:00:38,960

manager for the international space

18

00:00:43,030 --> 00:00:41,120

station of course we'll hear from both

19

00:00:44,709 --> 00:00:43,040

gentlemen and then we'll take questions

20

00:00:47,029 --> 00:00:44,719

here and at other nasa centers that are

21

00:00:49,670 --> 00:00:47,039

online with that i'll turn it over to

22

00:00:51,990 --> 00:00:49,680

john okay hey thanks kyle

23

00:00:54,229 --> 00:00:52,000

um i tell you i'm just extremely happy

24

00:00:57,029 --> 00:00:54,239

to be able to uh to have the opportunity

25

00:01:01,910 --> 00:00:57,039

to talk to you about sts-135 this was a

26
00:01:03,510 --> 00:01:01,920
flight that we were not sure as late as

27
00:01:05,830 --> 00:01:03,520
really this january that we were going

28
00:01:07,350 --> 00:01:05,840
to have the opportunity to fly

29
00:01:09,670 --> 00:01:07,360
at that time we were discussing the

30
00:01:10,350 --> 00:01:09,680
potential of maybe moving

31
00:01:13,270 --> 00:01:10,360
the

32
00:01:17,109 --> 00:01:13,280
sts-335 launch on need

33
00:01:18,390 --> 00:01:17,119
stack over to to fly sts-135

34
00:01:19,990 --> 00:01:18,400
but if you think about where we were in

35
00:01:22,310 --> 00:01:20,000
january

36
00:01:25,109 --> 00:01:22,320
it looked pretty ambitious

37
00:01:28,710 --> 00:01:25,119
to be able to do that and fly

38
00:01:31,109 --> 00:01:28,720

in in late june as was being proposed

39

00:01:32,950 --> 00:01:31,119

in january you know we had a we had our

40

00:01:34,630 --> 00:01:32,960

significant technical issue with the

41

00:01:35,670 --> 00:01:34,640

external tank still in front of us that

42

00:01:38,069 --> 00:01:35,680

we were

43

00:01:40,550 --> 00:01:38,079

vigorously working through

44

00:01:42,630 --> 00:01:40,560

we had two flights that were ahead of us

45

00:01:44,950 --> 00:01:42,640

including the uh the really

46

00:01:48,550 --> 00:01:44,960

ambitious ams flight that we just uh

47

00:01:51,030 --> 00:01:48,560

just flew and landed last month

48

00:01:54,389 --> 00:01:51,040

and um it just it just

49

00:01:56,069 --> 00:01:54,399

looked like it was quite a hill to climb

50

00:01:57,510 --> 00:01:56,079

especially with the reduced workforce

51
00:01:58,950 --> 00:01:57,520
that we had

52
00:02:00,149 --> 00:01:58,960
knowing that

53
00:02:02,069 --> 00:02:00,159
we had been going through this

54
00:02:04,469 --> 00:02:02,079
progressive series of layoffs and that

55
00:02:05,910 --> 00:02:04,479
the the team that was was executing all

56
00:02:07,830 --> 00:02:05,920
of this activity

57
00:02:09,430 --> 00:02:07,840
over the first part of this year would

58
00:02:11,029 --> 00:02:09,440
the contractor side would either move to

59
00:02:12,150 --> 00:02:11,039
a different program or be laid off this

60
00:02:14,229 --> 00:02:12,160
summer

61
00:02:16,949 --> 00:02:14,239
in addition to that the funding was was

62
00:02:19,430 --> 00:02:16,959
uncertain and we had to stay below

63
00:02:21,589 --> 00:02:19,440

pretty aggressive budget marks

64

00:02:23,190 --> 00:02:21,599

to allow us to extend the program out to

65

00:02:26,790 --> 00:02:23,200

uh to go fly it

66

00:02:27,750 --> 00:02:26,800

and here we are today and uh i just

67

00:02:29,430 --> 00:02:27,760

am so

68

00:02:30,949 --> 00:02:29,440

impressed by the team because we just

69

00:02:33,110 --> 00:02:30,959

came off of a great

70

00:02:34,949 --> 00:02:33,120

flight readiness review with really no

71

00:02:36,790 --> 00:02:34,959

issues at all

72

00:02:38,710 --> 00:02:36,800

the uh the review consisted mostly of

73

00:02:40,790 --> 00:02:38,720

talking about past issues and and what

74

00:02:42,150 --> 00:02:40,800

we had done to uh to mitigate them for

75

00:02:44,550 --> 00:02:42,160

this flight

76

00:02:45,830 --> 00:02:44,560

uh we did a tanking test which showed

77

00:02:47,750 --> 00:02:45,840

the rigor

78

00:02:49,750 --> 00:02:47,760

uh with which we approach our technical

79

00:02:51,430 --> 00:02:49,760

problems and it would could not have

80

00:02:53,990 --> 00:02:51,440

gone better

81

00:02:56,229 --> 00:02:54,000

the tank performed flawlessly we did our

82

00:02:57,589 --> 00:02:56,239

x-rays to make sure that that we were in

83

00:02:58,869 --> 00:02:57,599

good shape

84

00:03:02,070 --> 00:02:58,879

and

85

00:03:04,949 --> 00:03:02,080

ready to go

86

00:03:05,990 --> 00:03:04,959

roughly about 10 days after the um

87

00:03:07,990 --> 00:03:06,000

the uh

88

00:03:10,229 --> 00:03:08,000

initial launch date of june 28th was

89

00:03:11,350 --> 00:03:10,239

just kind of thrown out even like last

90

00:03:13,430 --> 00:03:11,360

summer

91

00:03:15,430 --> 00:03:13,440

and uh for this team to have come that

92

00:03:16,309 --> 00:03:15,440

uh that far

93

00:03:20,309 --> 00:03:16,319

uh

94

00:03:22,630 --> 00:03:20,319

we've been living under this year

95

00:03:24,149 --> 00:03:22,640

and uh and complete the two missions and

96

00:03:25,990 --> 00:03:24,159

then be ready to go

97

00:03:27,509 --> 00:03:26,000

uh for this one i think it's just a it's

98

00:03:30,070 --> 00:03:27,519

just a huge

99

00:03:31,830 --> 00:03:30,080

uh testament to how how professional

100

00:03:33,509 --> 00:03:31,840

they are and

101

00:03:34,789 --> 00:03:33,519

the payload you know for this flight i

102

00:03:35,589 --> 00:03:34,799

think it's really fitting that this is

103

00:03:41,910 --> 00:03:35,599

the

104

00:03:44,390 --> 00:03:41,920

just completely squared away for its

105

00:03:47,030 --> 00:03:44,400

extended life and and we can phase over

106

00:03:48,390 --> 00:03:47,040

to the research and utilization parts of

107

00:03:49,350 --> 00:03:48,400

of its life

108

00:03:51,350 --> 00:03:49,360

um so

109

00:03:53,990 --> 00:03:51,360

here we are poised to uh to finish

110

00:03:55,270 --> 00:03:54,000

strong and uh and preserve the legacy of

111

00:03:57,589 --> 00:03:55,280

everyone that has been a part of the

112

00:04:01,509 --> 00:03:57,599

shuttle team and i'm just just extremely

113

00:04:03,190 --> 00:04:01,519

proud to be part of that thanks

114

00:04:05,270 --> 00:04:03,200

well good morning everyone

115

00:04:06,630 --> 00:04:05,280

as john said we're extremely pleased to

116

00:04:09,589 --> 00:04:06,640

be sitting before you today talking

117

00:04:11,270 --> 00:04:09,599

about this flight sts-135 from an iss

118

00:04:14,229 --> 00:04:11,280

perspective

119

00:04:16,629 --> 00:04:14,239

it is carrying up critical supplies some

120

00:04:18,310 --> 00:04:16,639

folks look at this flight and perhaps

121

00:04:20,229 --> 00:04:18,320

don't see the excitement because we

122

00:04:21,749 --> 00:04:20,239

don't have a piece of major assembly

123

00:04:23,670 --> 00:04:21,759

hardware going up

124

00:04:25,430 --> 00:04:23,680

but we've got the mplm as full as we've

125

00:04:28,230 --> 00:04:25,440

ever had it from a cargo perspective

126

00:04:29,909 --> 00:04:28,240

we've got the mid deck full

127

00:04:32,790 --> 00:04:29,919

all of these supplies are going to be

128

00:04:34,870 --> 00:04:32,800

the lifeline to help us extend our

129

00:04:36,870 --> 00:04:34,880

period of time we can go on orbit before

130

00:04:39,749 --> 00:04:36,880

our commercial providers

131

00:04:41,270 --> 00:04:39,759

start flying regularly to iss

132

00:04:43,270 --> 00:04:41,280

and that was critical for us to give

133

00:04:45,030 --> 00:04:43,280

them the time they need to to make sure

134

00:04:46,629 --> 00:04:45,040

their vehicles are ready to go fly

135

00:04:48,310 --> 00:04:46,639

finish their development get their test

136

00:04:51,110 --> 00:04:48,320

flights behind them and then start

137

00:04:52,950 --> 00:04:51,120

servicing iss so from our perspective

138

00:04:55,430 --> 00:04:52,960

while it doesn't look very sexy it's a

139

00:04:57,670 --> 00:04:55,440

it's one of the most important flights

140

00:04:59,749 --> 00:04:57,680

that we've ever had come to iss from a

141

00:05:03,350 --> 00:04:59,759

shuttle perspective

142

00:05:04,790 --> 00:05:03,360

this on orbit concludes a period of

143

00:05:07,909 --> 00:05:04,800

extremely

144

00:05:10,550 --> 00:05:07,919

busy time for us on iss we have changed

145

00:05:12,629 --> 00:05:10,560

our focus to research

146

00:05:13,749 --> 00:05:12,639

about a year ago we started giving

147

00:05:16,230 --> 00:05:13,759

research

148

00:05:17,270 --> 00:05:16,240

instead of the previous way we operated

149

00:05:18,790 --> 00:05:17,280

which was

150

00:05:20,230 --> 00:05:18,800

the systems guys did everything they had

151

00:05:22,469 --> 00:05:20,240

to do and then the time that was left

152

00:05:24,870 --> 00:05:22,479

was devoted to research we about a year

153

00:05:26,070 --> 00:05:24,880

ago shifted to the other way of doing

154

00:05:27,909 --> 00:05:26,080

business which is first you give

155

00:05:29,189 --> 00:05:27,919

research what they require and then you

156

00:05:31,830 --> 00:05:29,199

figure out how to do the system work

157

00:05:33,590 --> 00:05:31,840

around that uh but be be that as it may

158

00:05:34,390 --> 00:05:33,600

of course you always get challenged and

159

00:05:36,550 --> 00:05:34,400

uh

160

00:05:38,550 --> 00:05:36,560

this last year as things started kind of

161

00:05:41,590 --> 00:05:38,560

moving to the right we had the shuttles

162

00:05:43,590 --> 00:05:41,600

move we had atv moved um we got things

163

00:05:45,590 --> 00:05:43,600

kind of bunched up so that this last few

164

00:05:48,950 --> 00:05:45,600

months we've been extremely busy on on

165

00:05:51,270 --> 00:05:48,960

orbit we had sts-134 we had a an atv

166

00:05:53,110 --> 00:05:51,280

that had to boost the iss to the highest

167

00:05:55,029 --> 00:05:53,120

altitude she's ever been at

168

00:05:57,909 --> 00:05:55,039

we had to get the atv off and get the

169

00:05:59,830 --> 00:05:57,919

progress on and then we have ulf7 coming

170

00:06:02,469 --> 00:05:59,840

right in the heels of that

171

00:06:04,150 --> 00:06:02,479

so following ulf7 we will be able to

172

00:06:06,550 --> 00:06:04,160

transition and provide more time to

173

00:06:09,110 --> 00:06:06,560

research whereas is prior to that time

174

00:06:11,270 --> 00:06:09,120

we weren't able to devote the the total

175

00:06:12,390 --> 00:06:11,280

amount of time that we that we had been

176
00:06:13,670 --> 00:06:12,400
asked

177
00:06:15,590 --> 00:06:13,680
and that was weighing heavily on our

178
00:06:17,110 --> 00:06:15,600
minds but in the end you got to do what

179
00:06:19,270 --> 00:06:17,120
you need to for the system so that it

180
00:06:21,749 --> 00:06:19,280
can ultimately support research in the

181
00:06:24,629 --> 00:06:21,759
long long long run

182
00:06:28,550 --> 00:06:24,639
uh during this period prior to uh

183
00:06:31,110 --> 00:06:28,560
uh to ulf7 we expected that we would not

184
00:06:32,070 --> 00:06:31,120
have much time for research we showed uh

185
00:06:34,710 --> 00:06:32,080
weeks

186
00:06:36,629 --> 00:06:34,720
for anywhere from zero to ten hours and

187
00:06:38,710 --> 00:06:36,639
we challenged the team way back prior to

188
00:06:41,029 --> 00:06:38,720

sts-134

189

00:06:41,990 --> 00:06:41,039

um cumulatively compared to what we

190

00:06:43,510 --> 00:06:42,000

thought we were going to give them we

191

00:06:44,390 --> 00:06:43,520

were able to give them about 100 hours

192

00:06:46,629 --> 00:06:44,400

more

193

00:06:49,270 --> 00:06:46,639

than than what we'd expected so the team

194

00:06:51,830 --> 00:06:49,280

has really focused hard on on doing

195

00:06:54,070 --> 00:06:51,840

research while we've wrapped up these

196

00:06:55,510 --> 00:06:54,080

last few missions to iss

197

00:06:57,270 --> 00:06:55,520

this particular mission will be a

198

00:06:58,950 --> 00:06:57,280

challenge for us as well they all they

199

00:07:00,550 --> 00:06:58,960

all seem to be but

200

00:07:02,710 --> 00:07:00,560

this one has its own unique challenges

201
00:07:04,150 --> 00:07:02,720
of course we're flying a crew of four

202
00:07:05,110 --> 00:07:04,160
we're doing that in order to make sure

203
00:07:06,790 --> 00:07:05,120
we can

204
00:07:08,629 --> 00:07:06,800
we have a what we used to refer to as

205
00:07:11,189 --> 00:07:08,639
cscs i don't i don't know what we call

206
00:07:12,390 --> 00:07:11,199
this uh this case that we we're flying

207
00:07:14,150 --> 00:07:12,400
into today

208
00:07:16,230 --> 00:07:14,160
but we're we've built a case around

209
00:07:17,909 --> 00:07:16,240
protecting the crew if in the unlikely

210
00:07:19,350 --> 00:07:17,919
event we have a shuttle problem before

211
00:07:20,950 --> 00:07:19,360
we used to plan to bring another shuttle

212
00:07:23,189 --> 00:07:20,960
up and we always had one ready to fly in

213
00:07:25,510 --> 00:07:23,199

time we made sure we had the logistics

214

00:07:27,430 --> 00:07:25,520

to support on this particular flight

215

00:07:29,990 --> 00:07:27,440

we're going we have a plan for returning

216

00:07:32,070 --> 00:07:30,000

the crew we have to utilize the soyuz we

217

00:07:33,670 --> 00:07:32,080

do it over an extended period of time

218

00:07:35,110 --> 00:07:33,680

and we gradually bring the crew back

219

00:07:37,430 --> 00:07:35,120

down and we had to make sure we had all

220

00:07:39,189 --> 00:07:37,440

the supplies on orbit to support that

221

00:07:41,510 --> 00:07:39,199

and that that's been looked at closely

222

00:07:42,390 --> 00:07:41,520

and and we're in a good posture

223

00:07:46,070 --> 00:07:42,400

so

224

00:07:47,510 --> 00:07:46,080

course four crew then makes it difficult

225

00:07:49,749 --> 00:07:47,520

to get all the work done on orbit that

226

00:07:51,670 --> 00:07:49,759

we normally do and this being atlantis

227

00:07:53,749 --> 00:07:51,680

we don't have the extension time on

228

00:07:56,230 --> 00:07:53,759

orbit as we do with the uh with the

229

00:07:59,029 --> 00:07:56,240

other spitz capable vehicles and so

230

00:08:00,309 --> 00:07:59,039

with the seven planned doc days um and

231

00:08:02,790 --> 00:08:00,319

four crew it's it's going to be

232

00:08:04,390 --> 00:08:02,800

extremely busy on orbit uh but the we've

233

00:08:05,270 --> 00:08:04,400

got one of the finest crews we've ever

234

00:08:07,270 --> 00:08:05,280

flown

235

00:08:08,469 --> 00:08:07,280

we have an incredibly experienced ops

236

00:08:10,550 --> 00:08:08,479

team

237

00:08:12,390 --> 00:08:10,560

the design guys and analysis folks on

238

00:08:15,909 --> 00:08:12,400

the ground

239

00:08:18,230 --> 00:08:15,919

have run a number of cases for various

240

00:08:18,950 --> 00:08:18,240

versions of how full the mplm would be

241

00:08:22,230 --> 00:08:18,960

and

242

00:08:23,670 --> 00:08:22,240

but you have to know what the load cases

243

00:08:25,430 --> 00:08:23,680

are you need to make sure the cg is

244

00:08:26,950 --> 00:08:25,440

right when you put a mass that big in

245

00:08:28,869 --> 00:08:26,960

the payload bay of the orbiter you have

246

00:08:31,830 --> 00:08:28,879

to know that it can control itself on on

247

00:08:33,750 --> 00:08:31,840

entry and landing so that's a phenomenal

248

00:08:36,550 --> 00:08:33,760

amount of work that was done in addition

249

00:08:38,070 --> 00:08:36,560

that we have a number of critical orus

250

00:08:39,990 --> 00:08:38,080

many of which

251
00:08:42,070 --> 00:08:40,000
were being were repaired and were on

252
00:08:43,430 --> 00:08:42,080
longer schedules

253
00:08:45,110 --> 00:08:43,440
i had thought that maybe we could move

254
00:08:47,030 --> 00:08:45,120
this flight a little to the right but we

255
00:08:48,150 --> 00:08:47,040
weren't really ultimately able to do

256
00:08:50,150 --> 00:08:48,160
that

257
00:08:51,750 --> 00:08:50,160
so therefore we we sent the team off

258
00:08:53,829 --> 00:08:51,760
with actions to go

259
00:08:55,750 --> 00:08:53,839
get their hardware ready to go fly and

260
00:08:57,350 --> 00:08:55,760
they did a tremendous job each of the

261
00:08:58,230 --> 00:08:57,360
oru's that we needed to have on this

262
00:08:59,750 --> 00:08:58,240
flight

263
00:09:01,110 --> 00:08:59,760

uh was

264

00:09:03,670 --> 00:09:01,120

they picked up the pace they got them

265

00:09:05,269 --> 00:09:03,680

refurbed and and in the mplm

266

00:09:06,949 --> 00:09:05,279

include including something we called

267

00:09:08,790 --> 00:09:06,959

the advanced

268

00:09:10,389 --> 00:09:08,800

rifta this is the tank

269

00:09:11,990 --> 00:09:10,399

that takes the brine from the urine

270

00:09:13,910 --> 00:09:12,000

processing assembly

271

00:09:15,350 --> 00:09:13,920

typically we fill those up and have

272

00:09:17,110 --> 00:09:15,360

thrown them away

273

00:09:18,710 --> 00:09:17,120

and they're big heavy tanks

274

00:09:21,030 --> 00:09:18,720

we've gone to a process now with this

275

00:09:23,190 --> 00:09:21,040

new design where we we can empty the

276

00:09:25,269 --> 00:09:23,200

tank on orbit and then we dump we dump

277

00:09:27,190 --> 00:09:25,279

the brine either into the rodnick tanks

278

00:09:28,790 --> 00:09:27,200

or disposable

279

00:09:30,949 --> 00:09:28,800

cans or bags so

280

00:09:33,430 --> 00:09:30,959

the team has done a remarkable job

281

00:09:35,269 --> 00:09:33,440

getting ready for this flight and in

282

00:09:37,590 --> 00:09:35,279

spite of how simple the cargo bay may

283

00:09:40,070 --> 00:09:37,600

look it's a very critical flight to us

284

00:09:41,829 --> 00:09:40,080

and we're ready to go

285

00:09:43,590 --> 00:09:41,839

and i think it's very fitting last

286

00:09:45,509 --> 00:09:43,600

flight of the shuttle to to play such a

287

00:09:46,550 --> 00:09:45,519

critical role in the future success of

288

00:09:48,230 --> 00:09:46,560

iss

289

00:09:50,230 --> 00:09:48,240

thank you

290

00:09:52,470 --> 00:09:50,240

okay we're ready for questions um to

291

00:09:54,230 --> 00:09:52,480

make this easy we'll just run the

292

00:09:57,269 --> 00:09:54,240

front line if you have a question we'll

293

00:10:00,870 --> 00:09:57,279

start right down here on the front

294

00:10:05,590 --> 00:10:02,630

we're back there in usa today one

295

00:10:07,350 --> 00:10:05,600

question for each of you if i might

296

00:10:09,269 --> 00:10:07,360

for john shannon can you run us through

297

00:10:11,990 --> 00:10:09,279

the most recent shuttle employment

298

00:10:14,790 --> 00:10:12,000

numbers where your workforce stands

299

00:10:16,470 --> 00:10:14,800

today and what you expect it to be by

300

00:10:19,750 --> 00:10:16,480

the end of august

301
00:10:22,069 --> 00:10:19,760
and for microsoft fordini can you remind

302
00:10:24,230 --> 00:10:22,079
me of the numbers of how long the

303
00:10:27,590 --> 00:10:24,240
supplies in the shuttle will get you

304
00:10:28,550 --> 00:10:27,600
um to to on to have a healthy iss life

305
00:10:30,150 --> 00:10:28,560
versus

306
00:10:32,389 --> 00:10:30,160
where you would have stood without this

307
00:10:34,150 --> 00:10:32,399
flight thank you

308
00:10:36,550 --> 00:10:34,160
okay so the first was the uh the

309
00:10:37,910 --> 00:10:36,560
question on the uh the current workforce

310
00:10:39,110 --> 00:10:37,920
and the the plans for the workforce

311
00:10:41,910 --> 00:10:39,120
right now

312
00:10:43,110 --> 00:10:41,920
uh tracy we're down to

313
00:10:45,110 --> 00:10:43,120

um

314

00:10:47,030 --> 00:10:45,120
those required just for sustaining

315

00:10:49,350 --> 00:10:47,040
engineering and operation of the the

316

00:10:52,389 --> 00:10:49,360
last flight so it's about a

317

00:10:54,550 --> 00:10:52,399
5500 contractor employees right now

318

00:10:55,829 --> 00:10:54,560
that's spread across

319

00:10:57,190 --> 00:10:55,839
texas

320

00:11:01,750 --> 00:10:57,200
utah

321

00:11:05,110 --> 00:11:01,760
louisiana alabama florida and a little

322

00:11:07,990 --> 00:11:05,120
bit under 1200 civil servants

323

00:11:10,230 --> 00:11:08,000
so we're at about 6 700 total people

324

00:11:11,110 --> 00:11:10,240
working on the shuttle program

325

00:11:12,230 --> 00:11:11,120
and

326
00:11:15,269 --> 00:11:12,240
the big

327
00:11:17,190 --> 00:11:15,279
layoff is is really

328
00:11:19,509 --> 00:11:17,200
right after the

329
00:11:21,269 --> 00:11:19,519
shuttle

330
00:11:23,030 --> 00:11:21,279
landing and then we will keep some

331
00:11:25,430 --> 00:11:23,040
people in florida for down mission

332
00:11:27,350 --> 00:11:25,440
processing so on july 22nd

333
00:11:29,910 --> 00:11:27,360
if we launch on july 8th

334
00:11:32,470 --> 00:11:29,920
there will be a significant loss about 3

335
00:11:34,790 --> 00:11:32,480
200 contractors

336
00:11:37,430 --> 00:11:34,800
there are

337
00:11:40,310 --> 00:11:37,440
progressive other layoffs in

338
00:11:42,870 --> 00:11:40,320

in august and in the middle of august

339

00:11:45,190 --> 00:11:42,880

for all of our uh

340

00:11:47,829 --> 00:11:45,200

prime contractors and the subs

341

00:11:49,670 --> 00:11:47,839

uh so they will go into the uh the

342

00:11:51,910 --> 00:11:49,680

transition retirement which is just the

343

00:11:54,470 --> 00:11:51,920

the configuration of the vehicles and

344

00:11:57,190 --> 00:11:54,480

and dispositioning the hardware uh

345

00:11:58,870 --> 00:11:57,200

that's under a thousand people total so

346

00:12:00,550 --> 00:11:58,880

uh that's that's where we are right now

347

00:12:02,710 --> 00:12:00,560

and where we should be in about a month

348

00:12:04,870 --> 00:12:02,720

and a half

349

00:12:05,910 --> 00:12:04,880

and tracy to answer your question uh

350

00:12:11,750 --> 00:12:05,920

this

351

00:12:14,150 --> 00:12:11,760

and assuming that the htv and atvs fly

352

00:12:16,069 --> 00:12:14,160

which is expected we should be able to

353

00:12:20,310 --> 00:12:16,079

do nominal operations with research

354

00:12:22,550 --> 00:12:20,320

sport six crew through 2012

355

00:12:24,470 --> 00:12:22,560

and so that's that was our goal with

356

00:12:26,069 --> 00:12:24,480

this flight this flight gave us about

357

00:12:28,629 --> 00:12:26,079

six more months

358

00:12:30,069 --> 00:12:28,639

on orbit worth of supplies

359

00:12:33,350 --> 00:12:30,079

and so

360

00:12:35,110 --> 00:12:33,360

that that was critical to us because

361

00:12:37,190 --> 00:12:35,120

that sounds like it's not that much but

362

00:12:39,829 --> 00:12:37,200

what it does is give you time to manage

363

00:12:41,750 --> 00:12:39,839

if if the shuttle didn't fly we'd have

364

00:12:43,670 --> 00:12:41,760

to start talking today

365

00:12:45,110 --> 00:12:43,680

about reducing

366

00:12:46,150 --> 00:12:45,120

the amount of research we were going to

367

00:12:47,750 --> 00:12:46,160

do

368

00:12:49,990 --> 00:12:47,760

in order to make sure that the only

369

00:12:52,790 --> 00:12:50,000

thing on the htvs and atvs were going to

370

00:12:55,670 --> 00:12:52,800

be supplies for the crew so this gave us

371

00:12:57,190 --> 00:12:55,680

the added flexibility of of letting us

372

00:12:59,910 --> 00:12:57,200

continue research

373

00:13:01,509 --> 00:12:59,920

take care of the crew through 2012 about

374

00:13:03,350 --> 00:13:01,519

midway through 2012 though we'll have to

375

00:13:05,350 --> 00:13:03,360

have that look again and say okay where

376

00:13:07,030 --> 00:13:05,360

where are our vehicles and our

377

00:13:08,790 --> 00:13:07,040

commercial vehicles and

378

00:13:11,269 --> 00:13:08,800

and if we're if we get nervous about

379

00:13:13,110 --> 00:13:11,279

their ability to support within within

380

00:13:15,269 --> 00:13:13,120

that next six months or so then we will

381

00:13:17,350 --> 00:13:15,279

be having that conversation i would tell

382

00:13:19,430 --> 00:13:17,360

you today i think they'll be fine

383

00:13:21,990 --> 00:13:19,440

i'm expecting to see them here in late

384

00:13:24,230 --> 00:13:22,000

fall early next year

385

00:13:27,269 --> 00:13:24,240

and that will be in plenty of time to

386

00:13:29,750 --> 00:13:27,279

to keep the logistics train going

387

00:13:31,430 --> 00:13:29,760

let's get bill right there

388

00:13:33,590 --> 00:13:31,440

bill harwood cbs news with one for each

389

00:13:35,110 --> 00:13:33,600

of you john what's the mood like going

390

00:13:36,310 --> 00:13:35,120

into this flight you spent your career

391

00:13:38,389 --> 00:13:36,320

in this and so have all these other

392

00:13:40,470 --> 00:13:38,399

people and uh the moment's finally

393

00:13:42,629 --> 00:13:40,480

gotten here

394

00:13:44,629 --> 00:13:42,639

well you know

395

00:13:47,110 --> 00:13:44,639

i can't

396

00:13:50,150 --> 00:13:47,120

there's a big awareness of of this is

397

00:13:53,590 --> 00:13:51,509

you know shuttle activity that we're

398

00:13:56,150 --> 00:13:53,600

going to do

399

00:13:58,310 --> 00:13:56,160

this team is is not

400

00:14:00,470 --> 00:13:58,320

really focused right now on last i see a

401
00:14:03,110 --> 00:14:00,480
huge amount of determination

402
00:14:04,790 --> 00:14:03,120
to to make sure that this flight goes

403
00:14:06,949 --> 00:14:04,800
extremely well

404
00:14:09,189 --> 00:14:06,959
um there's a lot of pride too because

405
00:14:11,189 --> 00:14:09,199
like i described in opening comments in

406
00:14:12,949 --> 00:14:11,199
january this was this was really

407
00:14:14,150 --> 00:14:12,959
ambitious to get to the point we're at

408
00:14:17,269 --> 00:14:14,160
right now

409
00:14:18,550 --> 00:14:17,279
and uh the team is aware that

410
00:14:21,350 --> 00:14:18,560
um

411
00:14:24,150 --> 00:14:21,360
you know carrying on their shoulders is

412
00:14:26,629 --> 00:14:24,160
the responsibility for 30 years of of

413
00:14:29,430 --> 00:14:26,639

legacy of this this you know iconic

414

00:14:30,710 --> 00:14:29,440

program iconic space program for

415

00:14:32,150 --> 00:14:30,720

for the nation

416

00:14:34,550 --> 00:14:32,160

and

417

00:14:37,590 --> 00:14:34,560

uh i just i see a lot of determination

418

00:14:39,110 --> 00:14:37,600

and and and the team has had time to um

419

00:14:40,710 --> 00:14:39,120

to prepare for

420

00:14:42,150 --> 00:14:40,720

the end of the program

421

00:14:45,350 --> 00:14:42,160

um

422

00:14:46,550 --> 00:14:45,360

it's uh it's been interesting the uh

423

00:14:47,750 --> 00:14:46,560

the uh

424

00:14:49,590 --> 00:14:47,760

folks that have been kind of on the

425

00:14:50,870 --> 00:14:49,600

outside of the program

426

00:14:52,790 --> 00:14:50,880

are

427

00:14:54,230 --> 00:14:52,800

having a more difficult time i think

428

00:14:55,829 --> 00:14:54,240

dealing with the end of the shuttle than

429

00:14:57,350 --> 00:14:55,839

the actual shuttle program because we've

430

00:14:58,550 --> 00:14:57,360

been looking at it and preparing for it

431

00:15:00,949 --> 00:14:58,560

and planning

432

00:15:03,189 --> 00:15:00,959

for quite a while

433

00:15:05,430 --> 00:15:03,199

you know it's tough to uh to break up a

434

00:15:06,629 --> 00:15:05,440

team that has performed so well for so

435

00:15:08,069 --> 00:15:06,639

long

436

00:15:09,269 --> 00:15:08,079

i am

437

00:15:12,069 --> 00:15:09,279

extremely pleased with how the

438

00:15:13,990 --> 00:15:12,079

contractor leadership has treated their

439

00:15:15,350 --> 00:15:14,000

employees

440

00:15:17,189 --> 00:15:15,360

either

441

00:15:19,509 --> 00:15:17,199

moving skills to other programs that

442

00:15:22,069 --> 00:15:19,519

they have or folks that

443

00:15:24,150 --> 00:15:22,079

they cannot move to other programs

444

00:15:28,069 --> 00:15:24,160

they've put together very fair severance

445

00:15:31,910 --> 00:15:30,870

to try to to have things like job fairs

446

00:15:35,670 --> 00:15:31,920

and

447

00:15:39,189 --> 00:15:35,680

activities that they can help them get

448

00:15:40,389 --> 00:15:39,199

placed in in other areas and that's been

449

00:15:43,829 --> 00:15:40,399

been very successful

450

00:15:46,150 --> 00:15:43,839

uh in texas in florida and alabama and

451
00:15:48,389 --> 00:15:46,160
really everywhere so you know

452
00:15:50,310 --> 00:15:48,399
it's you're balancing two things one is

453
00:15:52,230 --> 00:15:50,320
you're trying to treat the workforce

454
00:15:53,670 --> 00:15:52,240
with a with a tremendous amount of

455
00:15:55,829 --> 00:15:53,680
respect

456
00:15:57,670 --> 00:15:55,839
and you're also trying to get the job

457
00:15:59,110 --> 00:15:57,680
done and

458
00:16:00,629 --> 00:15:59,120
nobody takes it for granted that you

459
00:16:02,310 --> 00:16:00,639
know every shuttle flight is going to go

460
00:16:03,749 --> 00:16:02,320
extremely well you have to work very

461
00:16:05,910 --> 00:16:03,759
hard to ensure that that's going to

462
00:16:07,430 --> 00:16:05,920
happen and that's just what i see with

463
00:16:10,069 --> 00:16:07,440

the core shuttle team right now is just

464

00:16:11,350 --> 00:16:10,079

an extreme determination to to make sure

465

00:16:13,910 --> 00:16:11,360

that it goes well and that we end up

466

00:16:17,749 --> 00:16:15,749

and one quick one for mike suffer danny

467

00:16:19,350 --> 00:16:17,759

can you expand on your last answer about

468

00:16:21,430 --> 00:16:19,360

uh kites tell us what you're thinking

469

00:16:23,910 --> 00:16:21,440

with spacex with flights one and two and

470

00:16:25,110 --> 00:16:23,920

when when you expect these guys to fly i

471

00:16:27,110 --> 00:16:25,120

was i was interested in the impact of

472

00:16:29,910 --> 00:16:27,120

the engine fire on the on the taurus and

473

00:16:33,110 --> 00:16:29,920

and just how all that stacks up

474

00:16:34,829 --> 00:16:33,120

uh let's see for for spacex of course

475

00:16:39,110 --> 00:16:34,839

these aren't set

476

00:16:41,670 --> 00:16:39,120

um and in this in this environment

477

00:16:43,350 --> 00:16:41,680

these guys are trying to perform so

478

00:16:47,509 --> 00:16:43,360

they would like us to show aggressive

479

00:16:49,509 --> 00:16:47,519

dates to challenge the team and and

480

00:16:51,590 --> 00:16:49,519

make sure everybody focuses on this

481

00:16:54,150 --> 00:16:51,600

them flying as soon as they can

482

00:16:55,910 --> 00:16:54,160

uh that's balanced with us we have to

483

00:16:57,910 --> 00:16:55,920

pick we have to pick slots for them to

484

00:16:59,430 --> 00:16:57,920

come to iss that meet

485

00:17:01,030 --> 00:16:59,440

meet our needs that we can be ready for

486

00:17:02,870 --> 00:17:01,040

them uh so we're having those

487

00:17:05,909 --> 00:17:02,880

conversations uh

488

00:17:07,669 --> 00:17:05,919

is the with spacex specifically we're

489

00:17:09,750 --> 00:17:07,679

looking at combining they want to

490

00:17:12,710 --> 00:17:09,760

combine their two their remaining two

491

00:17:14,150 --> 00:17:12,720

demo flights into one and come to iss

492

00:17:16,069 --> 00:17:14,160

i'll actually have that conversation

493

00:17:18,789 --> 00:17:16,079

this afternoon and decide whether or not

494

00:17:21,909 --> 00:17:18,799

we can be comfortable with that with our

495

00:17:25,189 --> 00:17:21,919

our friends in the cots office

496

00:17:27,189 --> 00:17:25,199

and then assuming we agree to that uh i

497

00:17:29,270 --> 00:17:27,199

would expect to see that demonstration

498

00:17:31,270 --> 00:17:29,280

flight

499

00:17:33,669 --> 00:17:31,280

late in the fall i you know i would tell

500

00:17:35,190 --> 00:17:33,679

you a month but then then they you know

501
00:17:37,190 --> 00:17:35,200
everybody gets upset when we when we

502
00:17:38,070 --> 00:17:37,200
lean too far forward but

503
00:17:39,350 --> 00:17:38,080
uh

504
00:17:42,070 --> 00:17:39,360
i would say in

505
00:17:43,750 --> 00:17:42,080
the last quarter of the calendar year uh

506
00:17:45,270 --> 00:17:43,760
probably mid midway through the last

507
00:17:47,029 --> 00:17:45,280
quarter the calendar year

508
00:17:48,870 --> 00:17:47,039
is probably what you'll see a shoot for

509
00:17:51,270 --> 00:17:48,880
for the for that spacex flight that

510
00:17:53,350 --> 00:17:51,280
actually docks to iss

511
00:17:55,590 --> 00:17:53,360
as far as orbital goes that's a little

512
00:17:57,669 --> 00:17:55,600
that's a little more challenging they

513
00:17:59,110 --> 00:17:57,679

also wanted to try in fact currently i

514

00:18:00,390 --> 00:17:59,120

think we showed them

515

00:18:02,630 --> 00:18:00,400

in december

516

00:18:05,510 --> 00:18:02,640

they were trying to get

517

00:18:08,870 --> 00:18:05,520

at a test flight before that now similar

518

00:18:13,830 --> 00:18:11,590

the the engine

519

00:18:15,750 --> 00:18:13,840

failure they experienced on the ground

520

00:18:16,789 --> 00:18:15,760

has yet to be rolled into the schedule

521

00:18:18,310 --> 00:18:16,799

they're still

522

00:18:19,750 --> 00:18:18,320

sorting through

523

00:18:21,270 --> 00:18:19,760

the metallurgy associated with the

524

00:18:22,150 --> 00:18:21,280

problem and seeing if it's systemic

525

00:18:24,230 --> 00:18:22,160

across

526

00:18:25,669 --> 00:18:24,240

the fleet of engines or not

527

00:18:28,470 --> 00:18:25,679

and so they haven't officially come back

528

00:18:30,950 --> 00:18:28,480

and talked to us i would expect to today

529

00:18:32,710 --> 00:18:30,960

uh assuming that doesn't have a huge

530

00:18:34,390 --> 00:18:32,720

square wave i would expect to see them

531

00:18:36,310 --> 00:18:34,400

fly in the first quarter of next year

532

00:18:38,630 --> 00:18:36,320

their demo flight to iss

533

00:18:40,230 --> 00:18:38,640

but but that's the engine failure

534

00:18:41,750 --> 00:18:40,240

notwithstanding we really haven't we

535

00:18:44,950 --> 00:18:41,760

haven't understood the impacts of that

536

00:18:50,470 --> 00:18:47,750

go ahead mark right here

537

00:18:52,789 --> 00:18:50,480

uh thank you mark caro for aviation week

538

00:18:54,230 --> 00:18:52,799

and i'm i have a question and a

539

00:18:56,630 --> 00:18:54,240

follow-up

540

00:18:58,070 --> 00:18:56,640

my first uh question is for mike

541

00:18:59,909 --> 00:18:58,080

safradini

542

00:19:03,270 --> 00:18:59,919

um i think in the past you've sort of

543

00:19:05,830 --> 00:19:03,280

characterized especially the

544

00:19:09,190 --> 00:19:05,840

the uh life support gear on the station

545

00:19:10,789 --> 00:19:09,200

that's recycling uh the water

546

00:19:12,549 --> 00:19:10,799

and the oxygen is sort of in the

547

00:19:14,950 --> 00:19:12,559

development stage and i wonder if you

548

00:19:18,070 --> 00:19:14,960

can sort of characterize

549

00:19:20,710 --> 00:19:18,080

where you'll be with your ulf7 once it

550

00:19:23,270 --> 00:19:20,720

reaches a station in terms of

551
00:19:25,590 --> 00:19:23,280
additional troubleshooting you can do

552
00:19:27,590 --> 00:19:25,600
and also the kinds of spare parts you

553
00:19:28,390 --> 00:19:27,600
have to keep the

554
00:19:32,150 --> 00:19:28,400
the

555
00:19:33,750 --> 00:19:32,160
life support systems working

556
00:19:35,270 --> 00:19:33,760
that's a great question and i could

557
00:19:37,350 --> 00:19:35,280
spend three hours talking about the life

558
00:19:40,390 --> 00:19:37,360
support system on iss and i won't do

559
00:19:43,830 --> 00:19:40,400
that to you guys um

560
00:19:45,669 --> 00:19:43,840
let me back up and say uh the trl level

561
00:19:48,070 --> 00:19:45,679
alone has probably been brought up a

562
00:19:49,830 --> 00:19:48,080
couple of notches just in in the last

563
00:19:51,350 --> 00:19:49,840

year of operation on board iss we've

564

00:19:53,190 --> 00:19:51,360

learned quite a bit quite a bit about

565

00:19:55,190 --> 00:19:53,200

these systems remember we started with

566

00:19:56,390 --> 00:19:55,200

the upa problem and we think we now

567

00:19:58,390 --> 00:19:56,400

understand

568

00:20:00,230 --> 00:19:58,400

what caused that concern we're operating

569

00:20:01,750 --> 00:20:00,240

the system a little more conservatively

570

00:20:03,190 --> 00:20:01,760

we don't let the brine tank

571

00:20:05,110 --> 00:20:03,200

concentration get as high as we

572

00:20:06,470 --> 00:20:05,120

originally planned

573

00:20:08,310 --> 00:20:06,480

we're having to look we're looking at

574

00:20:10,789 --> 00:20:08,320

the pre-treat to see if we can increase

575

00:20:12,630 --> 00:20:10,799

the concentration concentration just

576

00:20:15,510 --> 00:20:12,640

simply turns into how how often you have

577

00:20:16,710 --> 00:20:15,520

to change out tanks and and you get less

578

00:20:18,310 --> 00:20:16,720

water back

579

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

when you're when you don't have this

580

00:20:23,190 --> 00:20:20,640

high concentration we had planned to

581

00:20:25,750 --> 00:20:23,200

operate at about 85 at what we call the

582

00:20:27,909 --> 00:20:25,760

85 percent level we're about 70 percent

583

00:20:30,230 --> 00:20:27,919

and uh and until we work out

584

00:20:31,909 --> 00:20:30,240

uh the fix to the the change to the

585

00:20:33,430 --> 00:20:31,919

flush water will probably stay there and

586

00:20:36,310 --> 00:20:33,440

we've been very stable you haven't heard

587

00:20:37,990 --> 00:20:36,320

us talk about upa failures in some time

588

00:20:41,350 --> 00:20:38,000

the oxygen generator was the one that

589

00:20:44,230 --> 00:20:41,360

was giving us trouble uh here recently

590

00:20:44,950 --> 00:20:44,240

we had we have determined that it has to

591

00:20:47,270 --> 00:20:44,960

do

592

00:20:49,830 --> 00:20:47,280

largely with

593

00:20:51,750 --> 00:20:49,840

with the ph level in the water and the

594

00:20:53,990 --> 00:20:51,760

reaction between the water and this and

595

00:20:57,750 --> 00:20:54,000

the cells cell stack itself

596

00:20:58,870 --> 00:20:57,760

we've changed how we operate the oga

597

00:21:00,710 --> 00:20:58,880

we've got

598

00:21:02,549 --> 00:21:00,720

we keep the water flowing all the time

599

00:21:04,390 --> 00:21:02,559

that was one issue it keeps us from

600

00:21:06,630 --> 00:21:04,400

stagnating water against the screens and

601
00:21:08,950 --> 00:21:06,640
causing part of the problem

602
00:21:11,990 --> 00:21:08,960
and then we introduced

603
00:21:14,830 --> 00:21:12,000
a filter and then this filter is a is a

604
00:21:17,510 --> 00:21:14,840
bed that manages the ph for us in a

605
00:21:20,630 --> 00:21:17,520
sense uh we just installed that we

606
00:21:21,590 --> 00:21:20,640
installed that uh on ulf um five and

607
00:21:23,270 --> 00:21:21,600
then on

608
00:21:24,470 --> 00:21:23,280
the press the flow rate was too low we

609
00:21:25,909 --> 00:21:24,480
thought that would be the case but we're

610
00:21:28,310 --> 00:21:25,919
going to try anyway

611
00:21:29,750 --> 00:21:28,320
uh on ulf6 we changed out some qd's to

612
00:21:31,590 --> 00:21:29,760
get the flow rate up which worked and so

613
00:21:33,350 --> 00:21:31,600

now we've got the oga up

614

00:21:35,990 --> 00:21:33,360

today it's produced an oxygen for six

615

00:21:36,870 --> 00:21:36,000

crew and and uh and we believe that's

616

00:21:38,630 --> 00:21:36,880

uh

617

00:21:39,990 --> 00:21:38,640

that's a long-term way we can operate

618

00:21:42,230 --> 00:21:40,000

and so in the future you'll hear us

619

00:21:44,390 --> 00:21:42,240

we'll we'll manage the oga

620

00:21:46,149 --> 00:21:44,400

uh with the electron and the gas on

621

00:21:48,390 --> 00:21:46,159

board but you probably won't hear us

622

00:21:49,590 --> 00:21:48,400

talking about operating beyond 55 that's

623

00:21:51,669 --> 00:21:49,600

one of the things we learned that it's

624

00:21:53,590 --> 00:21:51,679

just challenges to the fuel cells we

625

00:21:55,190 --> 00:21:53,600

operate above that so so we feel pretty

626

00:21:57,430 --> 00:21:55,200

comfortable about that

627

00:21:59,430 --> 00:21:57,440

the the water processor itself we had a

628

00:22:01,270 --> 00:21:59,440

couple problems with it over time we've

629

00:22:03,029 --> 00:22:01,280

removed a valve which is

630

00:22:05,110 --> 00:22:03,039

basically getting clogged that we didn't

631

00:22:06,630 --> 00:22:05,120

need and installed a filter which we

632

00:22:08,310 --> 00:22:06,640

showed it's flight readiness view it's

633

00:22:09,430 --> 00:22:08,320

it's a very ugly looking filter that we

634

00:22:11,350 --> 00:22:09,440

pulled out

635

00:22:13,350 --> 00:22:11,360

but that just means it's doing its job

636

00:22:15,590 --> 00:22:13,360

and and that's really helped the water

637

00:22:17,990 --> 00:22:15,600

processor become more stable so those

638

00:22:19,110 --> 00:22:18,000

systems are from a regenerative eco

639

00:22:20,710 --> 00:22:19,120

standpoint we're starting to get our

640

00:22:22,789 --> 00:22:20,720

arms around that

641

00:22:24,789 --> 00:22:22,799

the carbon dioxide removal system we've

642

00:22:26,470 --> 00:22:24,799

been challenged from the first flight we

643

00:22:27,510 --> 00:22:26,480

first activated it

644

00:22:29,990 --> 00:22:27,520

but we've

645

00:22:32,549 --> 00:22:30,000

we've pretty much solved that one

646

00:22:34,870 --> 00:22:32,559

as well and we've got both of the carbon

647

00:22:37,350 --> 00:22:34,880

dioxide removal systems working good we

648

00:22:39,990 --> 00:22:37,360

do have a system called the

649

00:22:41,270 --> 00:22:40,000

mass constituent analyzer mca kind of

650

00:22:44,149 --> 00:22:41,280

tells us the

651

00:22:45,750 --> 00:22:44,159

the levels of bpcO2 mp

652

00:22:47,430 --> 00:22:45,760

and the partial pressures of oxygen and

653

00:22:49,029 --> 00:22:47,440

some other gases

654

00:22:51,350 --> 00:22:49,039

that system is challenging us a little

655

00:22:53,029 --> 00:22:51,360

bit these days it's a relatively small

656

00:22:54,870 --> 00:22:53,039

system and we'll work through that

657

00:22:56,310 --> 00:22:54,880

that's not as critical we have other

658

00:22:58,310 --> 00:22:56,320

means of measuring the environment so

659

00:23:01,190 --> 00:22:58,320

we're not as concerned about that

660

00:23:03,029 --> 00:23:01,200

um so overall i think we're we're much

661

00:23:04,390 --> 00:23:03,039

better off than than we were it was good

662

00:23:06,470 --> 00:23:04,400

we had this extra time with shuttle

663

00:23:08,230 --> 00:23:06,480

flying to provide the supplies we have

664

00:23:10,470 --> 00:23:08,240

at least one spare for all of the

665

00:23:12,149 --> 00:23:10,480

critical systems uh on orbit in most

666

00:23:13,990 --> 00:23:12,159

cases we have two

667

00:23:15,830 --> 00:23:14,000

um and that's the exception that with

668

00:23:18,149 --> 00:23:15,840

the exception of the cedra beds

669

00:23:20,390 --> 00:23:18,159

themselves uh we don't have spare beds

670

00:23:22,549 --> 00:23:20,400

but uh but we have two seadras and only

671

00:23:23,990 --> 00:23:22,559

it only takes one to do the entire crew

672

00:23:25,190 --> 00:23:24,000

on iss so

673

00:23:26,549 --> 00:23:25,200

so i think we're in really good shape

674

00:23:29,830 --> 00:23:26,559

now

675

00:23:30,789 --> 00:23:29,840

that was almost three hours sorry

676

00:23:32,950 --> 00:23:30,799

shannon

677

00:23:35,750 --> 00:23:32,960

you mentioned something about where the

678

00:23:38,630 --> 00:23:35,760

workforce goes in terms of numbers in

679

00:23:40,230 --> 00:23:38,640

august i'm sorry i didn't hear what you

680

00:23:42,470 --> 00:23:40,240

said in terms of numbers i don't believe

681

00:23:44,230 --> 00:23:42,480

it was in response to an earlier

682

00:23:46,230 --> 00:23:44,240

question about the

683

00:23:48,630 --> 00:23:46,240

the future of the shuttle workforce

684

00:23:50,230 --> 00:23:48,640

after the last flight

685

00:23:52,310 --> 00:23:50,240

okay i'll just tell you what i'm told

686

00:23:53,750 --> 00:23:52,320

tracy is right now we're at about 5 500

687

00:23:54,710 --> 00:23:53,760

contractors

688

00:23:57,590 --> 00:23:54,720

um

689

00:23:59,909 --> 00:23:57,600

after the the july 22nd layoff and this

690

00:24:01,430 --> 00:23:59,919

as soon as we launch on on or around

691

00:24:03,669 --> 00:24:01,440

july 8th

692

00:24:06,390 --> 00:24:03,679

and then a few other layoffs as work is

693

00:24:08,390 --> 00:24:06,400

completed in in florida

694

00:24:10,149 --> 00:24:08,400

we'll be down to just under a thousand

695

00:24:12,549 --> 00:24:10,159

contractors that will be

696

00:24:14,310 --> 00:24:12,559

doing the disposition work of the

697

00:24:16,870 --> 00:24:14,320

of the assets of the program and

698

00:24:19,750 --> 00:24:16,880

preparing the orbiters for

699

00:24:21,510 --> 00:24:19,760

for being displayed in in museums and

700

00:24:23,510 --> 00:24:21,520

that's expected to be about a two-year

701
00:24:25,669 --> 00:24:23,520
program uh they will not keep that

702
00:24:28,470 --> 00:24:25,679
number of contractors and workforce all

703
00:24:29,430 --> 00:24:28,480
the time it'll be a steadily decreasing

704
00:24:30,149 --> 00:24:29,440
slope

705
00:24:31,909 --> 00:24:30,159
and

706
00:24:34,470 --> 00:24:31,919
as activities are completed those people

707
00:24:37,830 --> 00:24:34,480
will either be moved to other areas or

708
00:24:41,590 --> 00:24:39,990
um irene klotz with reuters i have a

709
00:24:44,070 --> 00:24:41,600
question for each of you i'm from for

710
00:24:45,830 --> 00:24:44,080
mike safradini um you mentioned about

711
00:24:47,110 --> 00:24:45,840
the increased science you've been able

712
00:24:50,630 --> 00:24:47,120
to get and i'm wondering if you could

713
00:24:53,110 --> 00:24:50,640

just give us an update on what the

714

00:24:55,350 --> 00:24:53,120

target number of hours for science on

715

00:24:58,789 --> 00:24:55,360

iss is and if it's still

716

00:25:01,190 --> 00:24:58,799

40 hours a week amongst the six person

717

00:25:03,029 --> 00:25:01,200

crew which doesn't seem like a whole lot

718

00:25:05,110 --> 00:25:03,039

and i know there's quite a lot just of

719

00:25:06,710 --> 00:25:05,120

maintenance and everything on station

720

00:25:07,990 --> 00:25:06,720

but why um

721

00:25:09,350 --> 00:25:08,000

um

722

00:25:11,909 --> 00:25:09,360

why does it

723

00:25:13,909 --> 00:25:11,919

why do you need five people

724

00:25:17,590 --> 00:25:13,919

operating station to basically get one

725

00:25:21,110 --> 00:25:19,269

okay that was a lot of questions there

726

00:25:23,990 --> 00:25:21,120

uh okay so right after this flight we're

727

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

gonna go to 33 hours a week average our

728

00:25:28,549 --> 00:25:25,760

goal is 35

729

00:25:30,149 --> 00:25:28,559

so we will we'll get through this stage

730

00:25:32,310 --> 00:25:30,159

and so when we bring up the next crew

731

00:25:34,710 --> 00:25:32,320

after this flight we'll go to 35 hours

732

00:25:37,669 --> 00:25:34,720

that was actually our goal not 40.

733

00:25:39,990 --> 00:25:37,679

um however it is a little misleading all

734

00:25:42,149 --> 00:25:40,000

of the exercise that the crew does

735

00:25:44,390 --> 00:25:42,159

generally is also

736

00:25:46,310 --> 00:25:44,400

human research we don't count those

737

00:25:48,390 --> 00:25:46,320

hours so when they're on the bikes or on

738

00:25:51,269 --> 00:25:48,400

the treadmill

739

00:25:53,110 --> 00:25:51,279

or the a-red they're doing prescribed

740

00:25:55,510 --> 00:25:53,120

runs and we get data from that from a

741

00:25:58,789 --> 00:25:55,520

human research standpoint so we actually

742

00:25:59,669 --> 00:25:58,799

get in a 35-hour week at 35 hours per

743

00:26:00,950 --> 00:25:59,679

week

744

00:26:03,909 --> 00:26:00,960

we actually get more than that because

745

00:26:05,269 --> 00:26:03,919

we count the exercise time

746

00:26:07,750 --> 00:26:05,279

because we don't count the exercise time

747

00:26:10,789 --> 00:26:07,760

excuse me um

748

00:26:11,830 --> 00:26:10,799

you know i could it i could spend a lot

749

00:26:13,669 --> 00:26:11,840

of time

750

00:26:15,990 --> 00:26:13,679

talking about this this topic first of

751
00:26:17,350 --> 00:26:16,000
all it's the us os crew is where we get

752
00:26:19,269 --> 00:26:17,360
our time from

753
00:26:21,430 --> 00:26:19,279
that's only on the us os that doesn't

754
00:26:23,990 --> 00:26:21,440
include the russian research so the the

755
00:26:25,750 --> 00:26:24,000
iss crew essentially has three crew on

756
00:26:28,310 --> 00:26:25,760
the russian segment dedicated to russian

757
00:26:29,909 --> 00:26:28,320
segment work and three dedicated to u.s

758
00:26:32,070 --> 00:26:29,919
os

759
00:26:34,870 --> 00:26:32,080
the crew work day

760
00:26:37,590 --> 00:26:34,880
not counting their time exercising is

761
00:26:39,669 --> 00:26:37,600
six and a half hours per day

762
00:26:41,590 --> 00:26:39,679
and we don't obligate them to work but

763
00:26:42,950 --> 00:26:41,600

about half a day on Saturdays for and

764

00:26:44,390 --> 00:26:42,960

that's that's for

765

00:26:46,149 --> 00:26:44,400

cleaning up

766

00:26:47,269 --> 00:26:46,159

cleaning screens and housekeeping type

767

00:26:49,590 --> 00:26:47,279

chores

768

00:26:50,789 --> 00:26:49,600

so you can do the math pretty quick

769

00:26:53,909 --> 00:26:50,799

you start asking yourself how are we

770

00:26:56,070 --> 00:26:53,919

able to give them 35 hours a week

771

00:26:57,909 --> 00:26:56,080

and and it's just it's just there's a

772

00:27:00,070 --> 00:26:57,919

lot to be done on station it's a very

773

00:27:01,350 --> 00:27:00,080

big vehicle it takes a lot to maintain

774

00:27:03,510 --> 00:27:01,360

it

775

00:27:05,190 --> 00:27:03,520

any extra time we can get

776

00:27:06,950 --> 00:27:05,200

we do for research you find that our

777

00:27:09,190 --> 00:27:06,960

crews give quite a bit of their weekends

778

00:27:11,669 --> 00:27:09,200

to research so when we when we say we're

779

00:27:13,029 --> 00:27:11,679

shooting for 35 hours in fact every time

780

00:27:14,950 --> 00:27:13,039

every increment

781

00:27:16,630 --> 00:27:14,960

we've actually gotten more research time

782

00:27:18,230 --> 00:27:16,640

than we expected because of the work

783

00:27:20,070 --> 00:27:18,240

that the crews do over the weekend just

784

00:27:21,750 --> 00:27:20,080

to participate and we just call it

785

00:27:23,669 --> 00:27:21,760

saturday morning science sometimes it's

786

00:27:25,830 --> 00:27:23,679

sunday morning

787

00:27:27,190 --> 00:27:25,840

it just depends on how how the crew is

788

00:27:29,350 --> 00:27:27,200

feeling and whether they have the extra

789

00:27:30,310 --> 00:27:29,360

time to give so

790

00:27:34,470 --> 00:27:30,320

we don't

791

00:27:36,470 --> 00:27:34,480

to do

792

00:27:37,830 --> 00:27:36,480

we carve out 35 hours and we have to

793

00:27:39,590 --> 00:27:37,840

work really hard

794

00:27:41,029 --> 00:27:39,600

we have to manage the maintenance of the

795

00:27:43,909 --> 00:27:41,039

systems to make sure we give that to

796

00:27:45,350 --> 00:27:43,919

them it's just a it's a big vehicle

797

00:27:47,430 --> 00:27:45,360

it takes a lot to maintain things you

798

00:27:51,269 --> 00:27:47,440

take for granted here on the ground we

799

00:27:55,430 --> 00:27:52,470

irene

800

00:27:57,669 --> 00:27:55,440

and for john um i know the nasa's human

801
00:28:00,789 --> 00:27:57,679
space flight program is not ending with

802
00:28:03,510 --> 00:28:00,799
shuttle um but it certainly has been the

803
00:28:06,870 --> 00:28:03,520
um the cornerstone of the program and i

804
00:28:08,549 --> 00:28:06,880
think to most people the most visible

805
00:28:09,669 --> 00:28:08,559
part of nasa

806
00:28:11,590 --> 00:28:09,679
and i hope this doesn't put you on the

807
00:28:13,909 --> 00:28:11,600
spot too much but do you think that the

808
00:28:15,830 --> 00:28:13,919
agency is going to have

809
00:28:17,990 --> 00:28:15,840
something along the lines of an identity

810
00:28:20,549 --> 00:28:18,000
crisis as far as the

811
00:28:22,950 --> 00:28:20,559
outside world is concerned after shuttle

812
00:28:24,630 --> 00:28:22,960
stops flying

813
00:28:28,630 --> 00:28:24,640

well i think it's it's very fair to say

814

00:28:32,230 --> 00:28:28,640

that the uh the space shuttle for

815

00:28:33,110 --> 00:28:32,240

a majority of nasa's existence has been

816

00:28:36,230 --> 00:28:33,120

um

817

00:28:38,230 --> 00:28:36,240

program

818

00:28:40,630 --> 00:28:38,240

so now uh now we're going to retire it

819

00:28:42,950 --> 00:28:40,640

and i think that that is my this is my

820

00:28:44,710 --> 00:28:42,960

personal opinion irene is that that is

821

00:28:46,070 --> 00:28:44,720

okay we're

822

00:28:47,669 --> 00:28:46,080

we have a

823

00:28:49,190 --> 00:28:47,679

significant breadth in the activities

824

00:28:51,510 --> 00:28:49,200

that we're going to do

825

00:28:53,190 --> 00:28:51,520

we'll focus on iss it will become the

826
00:28:54,549 --> 00:28:53,200
cornerstone of our human space flight

827
00:28:56,149 --> 00:28:54,559
activities

828
00:28:59,110 --> 00:28:56,159
we've got the commercial crew and cargo

829
00:29:00,230 --> 00:28:59,120
activities coming along and i i kind of

830
00:29:02,149 --> 00:29:00,240
like the

831
00:29:04,230 --> 00:29:02,159
my mental image is that

832
00:29:05,430 --> 00:29:04,240
you know nasa should be doing

833
00:29:08,149 --> 00:29:05,440
those things that are on the leading

834
00:29:09,750 --> 00:29:08,159
edge and the shuttle has been an amazing

835
00:29:12,950 --> 00:29:09,760
learning tool

836
00:29:15,190 --> 00:29:12,960
to provide us the platform an

837
00:29:16,789 --> 00:29:15,200
opportunity to learn how to operate

838
00:29:18,470 --> 00:29:16,799

in low-earth orbit we've learned how to

839

00:29:20,070 --> 00:29:18,480

assemble we've learned how to do space

840

00:29:22,070 --> 00:29:20,080

walks we've learned how

841

00:29:25,110 --> 00:29:22,080

to control the medical aspects of space

842

00:29:26,630 --> 00:29:25,120

flight especially long-term space flight

843

00:29:29,110 --> 00:29:26,640

we've just we've learned a lot about

844

00:29:30,950 --> 00:29:29,120

just how to do things in space

845

00:29:32,389 --> 00:29:30,960

and and now it's i think it's

846

00:29:35,190 --> 00:29:32,399

appropriate

847

00:29:37,830 --> 00:29:35,200

that we are handing that over to

848

00:29:40,389 --> 00:29:37,840

commercial companies to capitalize on

849

00:29:41,430 --> 00:29:40,399

that experience that's been learned

850

00:29:43,269 --> 00:29:41,440

and so

851

00:29:45,269 --> 00:29:43,279

given that that leading edge kind of

852

00:29:47,110 --> 00:29:45,279

theory i think nasa should go and expand

853

00:29:48,630 --> 00:29:47,120

our sphere and

854

00:29:50,710 --> 00:29:48,640

and

855

00:29:52,630 --> 00:29:50,720

take on the uh the

856

00:29:55,669 --> 00:29:52,640

activities that are outside of leo so

857

00:29:58,389 --> 00:29:55,679

we'll kind of leave behind leo to to iss

858

00:30:00,950 --> 00:29:58,399

and commercial and human space flight

859

00:30:03,269 --> 00:30:00,960

for nasa will work on the challenges of

860

00:30:05,909 --> 00:30:03,279

of doing things in geo or high earth

861

00:30:09,029 --> 00:30:05,919

orbit or uh potentially you know lunar

862

00:30:11,269 --> 00:30:09,039

orbit um and uh

863

00:30:13,669 --> 00:30:11,279

you know we have the the proposal to do

864

00:30:15,269 --> 00:30:13,679

uh near earth object activities and so

865

00:30:18,789 --> 00:30:15,279

that to me is the is the leading edge

866

00:30:20,070 --> 00:30:18,799

activities we were leaving behind

867

00:30:22,630 --> 00:30:20,080

the leo

868

00:30:24,389 --> 00:30:22,640

i think in good hands and

869

00:30:27,190 --> 00:30:24,399

and we'll go on to the next thing that

870

00:30:28,070 --> 00:30:27,200

uh that is uh that is difficult to do

871

00:30:29,909 --> 00:30:28,080

and

872

00:30:31,909 --> 00:30:29,919

i think most of the the folks are

873

00:30:33,269 --> 00:30:31,919

involved with nasa understand that with

874

00:30:35,990 --> 00:30:33,279

the limited

875

00:30:38,230 --> 00:30:36,000

uh funding that we can expect that you

876

00:30:40,149 --> 00:30:38,240

can't carry everything with you

877

00:30:41,590 --> 00:30:40,159

to do that next thing you have to give

878

00:30:43,590 --> 00:30:41,600

up something

879

00:30:45,269 --> 00:30:43,600

and it's appropriate in the right time

880

00:30:47,830 --> 00:30:45,279

with iss and the configuration that it's

881

00:30:49,510 --> 00:30:47,840

in right now to give up the the leo

882

00:30:52,230 --> 00:30:49,520

piece of it and really concentrate on

883

00:30:54,549 --> 00:30:52,240

the on the next activities

884

00:30:55,909 --> 00:30:54,559

i think another benefit

885

00:30:58,630 --> 00:30:55,919

that we don't really talk about very

886

00:31:00,710 --> 00:30:58,640

much is

887

00:31:01,909 --> 00:31:00,720

that comes from retiring the shuttle

888

00:31:05,029 --> 00:31:01,919

program

889

00:31:08,310 --> 00:31:05,039

is that now nasa has freed up

890

00:31:10,630 --> 00:31:08,320

a lot of people that know how to fly in

891

00:31:12,470 --> 00:31:10,640

space that know how to get hardware

892

00:31:15,430 --> 00:31:12,480

configured to do development to do

893

00:31:17,909 --> 00:31:15,440

integration uh to do the planning of

894

00:31:20,389 --> 00:31:17,919

missions and and can actually go and

895

00:31:22,549 --> 00:31:20,399

execute those missions so uh my

896

00:31:24,149 --> 00:31:22,559

confidence that uh that we're gonna take

897

00:31:26,070 --> 00:31:24,159

a little bit of downtime understand

898

00:31:28,710 --> 00:31:26,080

exactly what we wanna go do we have the

899

00:31:31,269 --> 00:31:28,720

right people to go do it um there seems

900

00:31:32,870 --> 00:31:31,279

to be sufficient funding to go do it

901
00:31:34,389 --> 00:31:32,880
so i think i think there's a lot of

902
00:31:36,310 --> 00:31:34,399
excitement in the year when you realize

903
00:31:37,590 --> 00:31:36,320
that yes it's sad to give up what you

904
00:31:40,149 --> 00:31:37,600
know

905
00:31:41,669 --> 00:31:40,159
but elio is in good hands

906
00:31:43,029 --> 00:31:41,679
we're going to go on and do the do the

907
00:31:45,350 --> 00:31:43,039
next thing and we have the right team to

908
00:31:46,710 --> 00:31:45,360
go do it

909
00:31:49,430 --> 00:31:46,720
gina

910
00:31:51,269 --> 00:31:49,440
sarah abc news two questions uh john

911
00:31:53,750 --> 00:31:51,279
shannon let's start how's the dynamic

912
00:31:56,710 --> 00:31:53,760
different with four people on the crew

913
00:31:59,269 --> 00:31:56,720

well it's uh it is different um

914

00:32:01,990 --> 00:31:59,279

it when we originally put this uh this

915

00:32:04,789 --> 00:32:02,000

uh flight together in in kwazii we'll

916

00:32:06,870 --> 00:32:04,799

tell you more about it then you know in

917

00:32:07,990 --> 00:32:06,880

flight director briefing later on uh we

918

00:32:09,750 --> 00:32:08,000

did not think we would be able to

919

00:32:11,350 --> 00:32:09,760

rendezvous on flight day three like we

920

00:32:13,190 --> 00:32:11,360

normally do just because of all the

921

00:32:15,269 --> 00:32:13,200

activities that happen in

922

00:32:17,190 --> 00:32:15,279

in flight days one and two

923

00:32:18,870 --> 00:32:17,200

but as they practiced and as they worked

924

00:32:20,549 --> 00:32:18,880

through different uh processes they were

925

00:32:23,190 --> 00:32:20,559

able to get to a point where we could we

926

00:32:25,350 --> 00:32:23,200

could rendezvous on flight day three

927

00:32:27,029 --> 00:32:25,360

the inspection's a little bit more

928

00:32:28,389 --> 00:32:27,039

difficult because it's that's a crew

929

00:32:30,310 --> 00:32:28,399

intensive activity

930

00:32:31,190 --> 00:32:30,320

uh docking the same way

931

00:32:32,630 --> 00:32:31,200

um

932

00:32:34,549 --> 00:32:32,640

all of the crew will be up on the flight

933

00:32:37,029 --> 00:32:34,559

deck there's nobody on the mid deck

934

00:32:39,590 --> 00:32:37,039

um so there's some emergency activities

935

00:32:41,269 --> 00:32:39,600

that you would send rex down to the to

936

00:32:42,389 --> 00:32:41,279

the mid deck and he would configure his

937

00:32:44,230 --> 00:32:42,399

com to

938

00:32:46,230 --> 00:32:44,240

to help out there

939

00:32:47,750 --> 00:32:46,240

it's it is different

940

00:32:49,669 --> 00:32:47,760

um

941

00:32:52,470 --> 00:32:49,679

but as we started working through all of

942

00:32:53,909 --> 00:32:52,480

the different issues uh we got to places

943

00:32:55,669 --> 00:32:53,919

where it's it you know we were able to

944

00:32:57,909 --> 00:32:55,679

resolve most of those differences and

945

00:33:00,310 --> 00:32:57,919

make it look much more like a more

946

00:33:02,549 --> 00:33:00,320

normal mission

947

00:33:06,389 --> 00:33:02,559

i have to say you know it's

948

00:33:08,070 --> 00:33:06,399

there has never been um

949

00:33:09,909 --> 00:33:08,080

a standard

950

00:33:10,950 --> 00:33:09,919

uh shuttle mission where you fly one

951
00:33:12,710 --> 00:33:10,960
mission and you fly another one that

952
00:33:15,350 --> 00:33:12,720
looks just like it and and we're gonna

953
00:33:17,750 --> 00:33:15,360
end up exactly the same way as this one

954
00:33:19,909 --> 00:33:17,760
took a lot of uh care and a lot of

955
00:33:21,590 --> 00:33:19,919
thought by the operations team as to how

956
00:33:23,669 --> 00:33:21,600
exactly we were gonna we were gonna be

957
00:33:27,590 --> 00:33:23,679
able to pull this off and i think they

958
00:33:31,269 --> 00:33:29,750
and for mike safradini five years ago i

959
00:33:32,549 --> 00:33:31,279
asked you if you thought you was enough

960
00:33:34,870 --> 00:33:32,559
wiggle room

961
00:33:36,549 --> 00:33:34,880
for you to finish the space station

962
00:33:39,110 --> 00:33:36,559
because there were all kinds of issues

963
00:33:40,549 --> 00:33:39,120

popping up so looking back the last five

964

00:33:42,870 --> 00:33:40,559

years what were the moments that made

965

00:33:44,710 --> 00:33:42,880

you think you wouldn't get to this point

966

00:33:46,549 --> 00:33:44,720

that we wouldn't get to this point

967

00:33:49,029 --> 00:33:46,559

wouldn't get to this point you got here

968

00:33:51,350 --> 00:33:49,039

what did it take to get here

969

00:33:52,870 --> 00:33:51,360

yeah gina that's a hard one you know we

970

00:33:55,190 --> 00:33:52,880

we've worked

971

00:33:56,789 --> 00:33:55,200

it's a it's just a fantastic program to

972

00:33:58,470 --> 00:33:56,799

work in because you're never bored we

973

00:34:01,430 --> 00:33:58,480

work more

974

00:34:05,110 --> 00:34:01,440

more issues than i i could even remember

975

00:34:07,350 --> 00:34:05,120

at this point we have been challenged

976

00:34:10,149 --> 00:34:07,360

just to have this flight was a was an

977

00:34:12,069 --> 00:34:10,159

important milestone uh there are some

978

00:34:13,510 --> 00:34:12,079

systems that we worried about the oxygen

979

00:34:14,629 --> 00:34:13,520

generation was one i really worried

980

00:34:16,869 --> 00:34:14,639

about whether we were going to figure

981

00:34:18,069 --> 00:34:16,879

out how to tackle that before

982

00:34:20,230 --> 00:34:18,079

before we got to the point where we

983

00:34:22,470 --> 00:34:20,240

didn't have a regular logistics train

984

00:34:25,349 --> 00:34:22,480

that's been an important one

985

00:34:27,750 --> 00:34:25,359

for us we've

986

00:34:29,510 --> 00:34:27,760

we've been really ultimately throughout

987

00:34:32,310 --> 00:34:29,520

this program we've been relatively

988

00:34:34,310 --> 00:34:32,320

blessed from an anomaly standpoint

989

00:34:36,790 --> 00:34:34,320

but the pump module failure taught us a

990

00:34:40,710 --> 00:34:36,800

whole lot and um

991

00:34:44,470 --> 00:34:42,389

that's a that's an opportunity for us

992

00:34:46,230 --> 00:34:44,480

every time we have a failure like this

993

00:34:48,710 --> 00:34:46,240

uh it's an opportunity for us to learn

994

00:34:51,030 --> 00:34:48,720

and as long as we learn from them all

995

00:34:52,869 --> 00:34:51,040

then then we'll be okay but

996

00:34:54,790 --> 00:34:52,879

you know along the way i guess i always

997

00:34:56,950 --> 00:34:54,800

assumed we'd figure out how to get there

998

00:34:59,349 --> 00:34:56,960

it's just the way we've been

999

00:35:01,190 --> 00:34:59,359

i i'll tell you we

1000

00:35:03,990 --> 00:35:01,200

this is reminiscing and we did a lot of

1001

00:35:06,310 --> 00:35:04,000

this about about a year ago but

1002

00:35:08,870 --> 00:35:06,320

when i knew we'd be okay was on the

1003

00:35:10,390 --> 00:35:08,880

flight where we discovered uh it was the

1004

00:35:12,550 --> 00:35:10,400

no two flight

1005

00:35:15,510 --> 00:35:12,560

and during that flight we discovered not

1006

00:35:17,190 --> 00:35:15,520

only the the rotary joint for one of the

1007

00:35:19,430 --> 00:35:17,200

solar arrays was

1008

00:35:20,790 --> 00:35:19,440

was damaged at the point to where we

1009

00:35:22,790 --> 00:35:20,800

didn't believe it would be repaired but

1010

00:35:24,790 --> 00:35:22,800

we also learned there in that mission

1011

00:35:25,589 --> 00:35:24,800

that we knew how to tear a solar array

1012

00:35:27,270 --> 00:35:25,599

and

1013

00:35:30,150 --> 00:35:27,280

by the end of that mission

1014

00:35:31,670 --> 00:35:30,160

we had repaired the solar ray and uh and

1015

00:35:33,349 --> 00:35:31,680

it began to focus on how we were going

1016

00:35:35,270 --> 00:35:33,359

to live with this with this joint and

1017

00:35:36,870 --> 00:35:35,280

ultimately we didn't have to replace the

1018

00:35:38,069 --> 00:35:36,880

joint

1019

00:35:39,510 --> 00:35:38,079

and so

1020

00:35:41,190 --> 00:35:39,520

once we got through that i kind of felt

1021

00:35:42,710 --> 00:35:41,200

like this this team could tackle just

1022

00:35:45,910 --> 00:35:42,720

about any problem that

1023

00:35:47,430 --> 00:35:45,920

that was dished out it's a very very

1024

00:35:48,390 --> 00:35:47,440

dangerous environment

1025

00:35:49,829 --> 00:35:48,400

space

1026

00:35:52,790 --> 00:35:49,839

people don't

1027

00:35:54,310 --> 00:35:52,800

i think normally think about that and

1028

00:35:56,310 --> 00:35:54,320

you know when shuttles launch and land

1029

00:35:58,470 --> 00:35:56,320

we all understand

1030

00:36:03,270 --> 00:35:58,480

the risk associated that we've lost dear

1031

00:36:08,630 --> 00:36:06,069

phases of flight but but on orbit we

1032

00:36:10,069 --> 00:36:08,640

live with very real risks

1033

00:36:11,670 --> 00:36:10,079

that we can't do a whole lot about it's

1034

00:36:13,190 --> 00:36:11,680

the risk you you just have to learn to

1035

00:36:15,349 --> 00:36:13,200

live with one is

1036

00:36:16,390 --> 00:36:15,359

and we read about it last week a risk of

1037

00:36:17,750 --> 00:36:16,400

things

1038

00:36:19,670 --> 00:36:17,760

that are also

1039

00:36:21,349 --> 00:36:19,680
co-orbiting the earth with us and

1040

00:36:23,190 --> 00:36:21,359
sometimes they pass our orbit sometimes

1041

00:36:25,030 --> 00:36:23,200
they pass a little too close

1042

00:36:27,589 --> 00:36:25,040
uh often most of the time we get to

1043

00:36:28,470 --> 00:36:27,599
maneuver sometimes we don't

1044

00:36:30,069 --> 00:36:28,480
um

1045

00:36:31,990 --> 00:36:30,079
and then we shelter in place and that's

1046

00:36:33,910 --> 00:36:32,000
a that's that is a risk we live with

1047

00:36:35,589 --> 00:36:33,920
every day but when i look at all the

1048

00:36:37,829 --> 00:36:35,599
things we had to do

1049

00:36:40,710 --> 00:36:37,839
the fact that we got sts-135 i think put

1050

00:36:42,550 --> 00:36:40,720
us in in a posture to let us wait for

1051

00:36:43,910 --> 00:36:42,560

the next logistics train so to me it's

1052

00:36:45,670 --> 00:36:43,920

always been about

1053

00:36:46,870 --> 00:36:45,680

having everything we needed to to do

1054

00:36:48,150 --> 00:36:46,880

what we ultimately said we were going to

1055

00:36:50,069 --> 00:36:48,160

do with this vehicle we spent a lot of

1056

00:36:51,910 --> 00:36:50,079

money on it's now time for us to utilize

1057

00:36:53,270 --> 00:36:51,920

it and i wanted to i hope that we'd be

1058

00:36:55,829 --> 00:36:53,280

in a good position to focus on

1059

00:36:57,109 --> 00:36:55,839

utilization i think we are

1060

00:36:59,190 --> 00:36:57,119

good robert

1061

00:37:00,710 --> 00:36:59,200

hi robert perlin with collectspace.com

1062

00:37:01,589 --> 00:37:00,720

uh with two questions one for each of

1063

00:37:03,030 --> 00:37:01,599

you

1064

00:37:05,190 --> 00:37:03,040

first for john

1065

00:37:07,589 --> 00:37:05,200

to follow up on something you you said

1066

00:37:09,349 --> 00:37:07,599

just a few questions ago

1067

00:37:11,750 --> 00:37:09,359

do i understand correctly

1068

00:37:12,870 --> 00:37:11,760

that transition and retirement is going

1069

00:37:14,790 --> 00:37:12,880

to take about

1070

00:37:16,470 --> 00:37:14,800

two years and then is that when the

1071

00:37:18,710 --> 00:37:16,480

space shuttle program formally comes to

1072

00:37:20,550 --> 00:37:18,720

an end and how big of a task is it

1073

00:37:23,510 --> 00:37:20,560

during that time to archive the

1074

00:37:24,390 --> 00:37:23,520

knowledge of 30 of a 30-year program all

1075

00:37:25,270 --> 00:37:24,400

right

1076

00:37:28,470 --> 00:37:25,280

um

1077

00:37:30,310 --> 00:37:28,480

we're not waiting until the final wheel

1078

00:37:32,710 --> 00:37:30,320

stop to get started on on transition

1079

00:37:36,790 --> 00:37:32,720

retirement it's been ongoing for

1080

00:37:39,030 --> 00:37:36,800

uh about three years really and

1081

00:37:41,030 --> 00:37:39,040

as you know as we would

1082

00:37:42,870 --> 00:37:41,040

end an activity then we would clean up

1083

00:37:45,670 --> 00:37:42,880

that area and

1084

00:37:47,829 --> 00:37:45,680

and disposition resources um things like

1085

00:37:49,670 --> 00:37:47,839

palmdale you know we

1086

00:37:51,030 --> 00:37:49,680

cleared out of palmdale and

1087

00:37:58,470 --> 00:37:51,040

and

1088

00:38:00,950 --> 00:37:58,480

you saw like pad b has been has been

1089

00:38:03,270 --> 00:38:00,960

coming down those are big examples there

1090

00:38:05,829 --> 00:38:03,280

are many many many smaller examples

1091

00:38:08,069 --> 00:38:05,839

knowledge capture data archiving records

1092

00:38:10,230 --> 00:38:08,079

retention that's all been going on

1093

00:38:11,829 --> 00:38:10,240

and that's been good because it

1094

00:38:13,910 --> 00:38:11,839

there is nobody bored in the shuttle

1095

00:38:15,190 --> 00:38:13,920

program i guarantee you you know as as

1096

00:38:16,550 --> 00:38:15,200

they're if they're not doing flight

1097

00:38:18,390 --> 00:38:16,560

activities they're doing transition

1098

00:38:20,550 --> 00:38:18,400

retirement kind of activities

1099

00:38:21,829 --> 00:38:20,560

um will we be a hundred percent done

1100

00:38:25,190 --> 00:38:21,839

with everything associated with the

1101
00:38:27,030 --> 00:38:25,200
shuttle in two years no uh that would be

1102
00:38:27,990 --> 00:38:27,040
that would be uh not reasonable to

1103
00:38:29,670 --> 00:38:28,000
expect

1104
00:38:32,390 --> 00:38:29,680
i think all of the the big things will

1105
00:38:34,470 --> 00:38:32,400
be done and then the the smaller

1106
00:38:36,870 --> 00:38:34,480
uh activities will just be handed over

1107
00:38:39,030 --> 00:38:36,880
to the individual centers where those

1108
00:38:40,790 --> 00:38:39,040
uh those resources are located for them

1109
00:38:42,150 --> 00:38:40,800
to to disposition

1110
00:38:43,750 --> 00:38:42,160
we'll concentrate over the next two

1111
00:38:46,630 --> 00:38:43,760
years on things that are outside of the

1112
00:38:49,109 --> 00:38:46,640
fences of the of the centers uh at

1113
00:38:51,910 --> 00:38:49,119

contractor uh sites making sure that

1114

00:38:54,230 --> 00:38:51,920

they're all uh squared away and and uh

1115

00:38:56,390 --> 00:38:54,240

and we've uh we've dispositioned all the

1116

00:38:58,790 --> 00:38:56,400

all the resources and recorded all the

1117

00:39:00,230 --> 00:38:58,800

activities that that we needed to um so

1118

00:39:01,190 --> 00:39:00,240

we're projecting probably about two

1119

00:39:03,990 --> 00:39:01,200

years

1120

00:39:05,990 --> 00:39:04,000

um the shuttle program will end uh 30

1121

00:39:07,829 --> 00:39:06,000

days after we'll stop

1122

00:39:09,910 --> 00:39:07,839

on atlantis on this flight that'll be

1123

00:39:11,910 --> 00:39:09,920

the official end of the shuttle program

1124

00:39:14,630 --> 00:39:11,920

and then there will just be a space

1125

00:39:18,310 --> 00:39:14,640

shuttle transition retirement

1126

00:39:19,750 --> 00:39:18,320

organization that we already have

1127

00:39:20,630 --> 00:39:19,760

set that up we know who's going to run

1128

00:39:21,829 --> 00:39:20,640

it and

1129

00:39:23,030 --> 00:39:21,839

and what their activities are going to

1130

00:39:24,870 --> 00:39:23,040

be

1131

00:39:28,230 --> 00:39:24,880

so really the end of the shuttle is 30

1132

00:39:31,190 --> 00:39:28,240

days after atlantis lands

1133

00:39:34,310 --> 00:39:31,200

and for mike um in the case in the rare

1134

00:39:37,349 --> 00:39:34,320

case that this mission had to take cscs

1135

00:39:39,109 --> 00:39:37,359

safe haven on the space station um where

1136

00:39:40,550 --> 00:39:39,119

does that leave you at the end with the

1137

00:39:42,470 --> 00:39:40,560

space station can you still support a

1138

00:39:43,910 --> 00:39:42,480

six-person crew at that point

1139

00:39:45,910 --> 00:39:43,920

um

1140

00:39:48,390 --> 00:39:45,920

taking into effect the the supplies

1141

00:39:50,710 --> 00:39:48,400

they're delivering with this flight

1142

00:39:53,829 --> 00:39:50,720

that's an excellent question robert

1143

00:39:56,950 --> 00:39:53,839

in fact what we showed through our

1144

00:39:59,190 --> 00:39:56,960

through our work is that we in fact

1145

00:40:00,710 --> 00:39:59,200

it's you know it's a gradual

1146

00:40:02,230 --> 00:40:00,720

coming down of the crew it's not one

1147

00:40:04,550 --> 00:40:02,240

flight comes up from all four crew go

1148

00:40:06,550 --> 00:40:04,560

home so we begin relatively early by

1149

00:40:08,470 --> 00:40:06,560

removing one of the crew and then

1150

00:40:11,030 --> 00:40:08,480

eventually come down by december time

1151
00:40:12,950 --> 00:40:11,040
frame we're down to six to less than six

1152
00:40:15,349 --> 00:40:12,960
crew actually so from a resource

1153
00:40:17,190 --> 00:40:15,359
standpoint we don't the the research

1154
00:40:19,430 --> 00:40:17,200
resources aren't quite as challenged

1155
00:40:21,670 --> 00:40:19,440
then we the crew actually

1156
00:40:23,990 --> 00:40:21,680
um starts the crew number stays down

1157
00:40:25,990 --> 00:40:24,000
below six for a while

1158
00:40:27,510 --> 00:40:26,000
and then what we made sure was that

1159
00:40:29,910 --> 00:40:27,520
given the normal

1160
00:40:31,990 --> 00:40:29,920
uh vehicle traffic that we can expect

1161
00:40:34,069 --> 00:40:32,000
not including the

1162
00:40:35,750 --> 00:40:34,079
the commercial cargo vehicles so we made

1163
00:40:37,349 --> 00:40:35,760

sure we didn't have to rely on those

1164

00:40:39,270 --> 00:40:37,359

that by the time we got the last crew

1165

00:40:40,710 --> 00:40:39,280

person home we could reconstitute up

1166

00:40:43,270 --> 00:40:40,720

back up to six

1167

00:40:44,790 --> 00:40:43,280

uh upon the return of the last crew and

1168

00:40:47,750 --> 00:40:44,800

it was i forgotten

1169

00:40:49,829 --> 00:40:47,760

a few weeks later we fly a soyuz up with

1170

00:40:52,390 --> 00:40:49,839

with a full crew of of three and we get

1171

00:40:56,790 --> 00:40:52,400

back up to six and can continue on so

1172

00:40:59,829 --> 00:40:57,510

hi

1173

00:41:01,910 --> 00:40:59,839

denise ciao at space.com the question

1174

00:41:04,150 --> 00:41:01,920

for i think john shannon but perhaps

1175

00:41:06,790 --> 00:41:04,160

either of you um just curious as to

1176

00:41:09,109 --> 00:41:06,800

whether from a program perspective

1177

00:41:10,710 --> 00:41:09,119

was it a lot more challenging to manage

1178

00:41:12,870 --> 00:41:10,720

and process the payload for this mission

1179

00:41:13,910 --> 00:41:12,880

because it was the last and when it was

1180

00:41:16,230 --> 00:41:13,920

announced that you were going to go

1181

00:41:18,390 --> 00:41:16,240

ahead and fly 135 were there special

1182

00:41:20,309 --> 00:41:18,400

arrangements made to accommodate cargo

1183

00:41:22,309 --> 00:41:20,319

that would need the capacity of the

1184

00:41:25,750 --> 00:41:22,319

shuttle to bring it up okay

1185

00:41:27,829 --> 00:41:25,760

that's actually both of us um

1186

00:41:29,430 --> 00:41:27,839

we had made sure that we were really

1187

00:41:31,109 --> 00:41:29,440

well aware

1188

00:41:33,190 --> 00:41:31,119

as we went through the

1189

00:41:35,190 --> 00:41:33,200

the budget and authorization and

1190

00:41:37,990 --> 00:41:35,200

appropriations discussions

1191

00:41:39,910 --> 00:41:38,000

last fall and into this spring

1192

00:41:42,150 --> 00:41:39,920

that we were very mindful of the dates

1193

00:41:44,550 --> 00:41:42,160

that were required to protect crew

1194

00:41:46,470 --> 00:41:44,560

training to protect cargo configuration

1195

00:41:48,470 --> 00:41:46,480

to make sure that that we had everything

1196

00:41:49,670 --> 00:41:48,480

that we needed to be able to fly this

1197

00:41:53,030 --> 00:41:49,680

flight

1198

00:41:54,790 --> 00:41:53,040

at this time and we were

1199

00:41:55,910 --> 00:41:54,800

very clear with

1200

00:41:57,990 --> 00:41:55,920

both

1201
00:41:59,750 --> 00:41:58,000
congress and the administration of those

1202
00:42:00,950 --> 00:41:59,760
need dates and we worked i think very

1203
00:42:02,470 --> 00:42:00,960
closely with

1204
00:42:03,750 --> 00:42:02,480
with them to make sure that that was

1205
00:42:06,069 --> 00:42:03,760
understood

1206
00:42:07,589 --> 00:42:06,079
we protected those dates and

1207
00:42:10,230 --> 00:42:07,599
because we were running under in our

1208
00:42:13,589 --> 00:42:10,240
budget uh significantly we had some room

1209
00:42:16,309 --> 00:42:13,599
to to be able to uh to uh to process the

1210
00:42:18,470 --> 00:42:16,319
things required to uh to stay on track

1211
00:42:20,630 --> 00:42:18,480
for this flight so it was we treated it

1212
00:42:22,710 --> 00:42:20,640
fairly uh pretty much like a like a

1213
00:42:24,870 --> 00:42:22,720

regular mission from a from a shuttle

1214

00:42:26,630 --> 00:42:24,880

standpoint and uh and mike can talk

1215

00:42:28,069 --> 00:42:26,640

about the uh what actually goes in the

1216

00:42:29,349 --> 00:42:28,079

mplm so

1217

00:42:33,190 --> 00:42:29,359

we we

1218

00:42:35,589 --> 00:42:33,200

also early on for sts-134 the launch on

1219

00:42:37,190 --> 00:42:35,599

need flight we decided that the

1220

00:42:38,870 --> 00:42:37,200

the supplies needed for the launch on

1221

00:42:41,270 --> 00:42:38,880

need flight was very similar to supplies

1222

00:42:43,750 --> 00:42:41,280

we needed on this flight for for uh for

1223

00:42:46,069 --> 00:42:43,760

a stand-alone mission that is if you had

1224

00:42:48,630 --> 00:42:46,079

to do a launch on need because we had

1225

00:42:49,910 --> 00:42:48,640

stranded the sts-134 crew on orbit they

1226
00:42:52,150 --> 00:42:49,920
were going to consume quite a few of our

1227
00:42:55,030 --> 00:42:52,160
supplies so essentially we needed a full

1228
00:42:56,790 --> 00:42:55,040
mplm so when the shuttle left we'd be in

1229
00:42:59,349 --> 00:42:56,800
a good configuration

1230
00:43:01,430 --> 00:42:59,359
to continue on with iss and so early on

1231
00:43:03,030 --> 00:43:01,440
we we had pretty much decided we'd have

1232
00:43:05,589 --> 00:43:03,040
a fully loaded mplm as part of this

1233
00:43:07,190 --> 00:43:05,599
flight and we had manifested in lmc

1234
00:43:10,470 --> 00:43:07,200
because we didn't know if we needed it

1235
00:43:12,230 --> 00:43:10,480
but it was always good insurance

1236
00:43:14,069 --> 00:43:12,240
and then we made sure that we protected

1237
00:43:16,550 --> 00:43:14,079
the team that does the work to load the

1238
00:43:18,230 --> 00:43:16,560

mplms and and uh and

1239

00:43:21,109 --> 00:43:18,240

manifest the

1240

00:43:23,910 --> 00:43:21,119

uh and and essentially hands-on load the

1241

00:43:26,309 --> 00:43:23,920

lmc were protected in our budgets

1242

00:43:29,430 --> 00:43:26,319

through the end of um when we expected

1243

00:43:32,950 --> 00:43:29,440

sts-135 to fly and as you may recall the

1244

00:43:35,589 --> 00:43:32,960

lon was in the late june time frame

1245

00:43:37,270 --> 00:43:35,599

already so we we had kind of because of

1246

00:43:40,309 --> 00:43:37,280

what we needed to do if we had to do the

1247

00:43:42,069 --> 00:43:40,319

yellow in one the 135 mission itself was

1248

00:43:44,950 --> 00:43:42,079

essentially the same it was four crew it

1249

00:43:47,510 --> 00:43:44,960

was an it was an mplm we had hoped to

1250

00:43:50,069 --> 00:43:47,520

unload the mplm but and rescue the crew

1251

00:43:52,710 --> 00:43:50,079

at the same time um and so we've kind of

1252

00:43:54,710 --> 00:43:52,720

been following this road and uh for some

1253

00:43:57,430 --> 00:43:54,720

time and and made sure the team was at

1254

00:43:59,589 --> 00:43:57,440

the right size to to protect that

1255

00:44:01,190 --> 00:43:59,599

throughout

1256

00:44:02,470 --> 00:44:01,200

let me take two more questions here then

1257

00:44:04,069 --> 00:44:02,480

we're gonna go to ksc and then we'll

1258

00:44:05,910 --> 00:44:04,079

come back so i'm gonna get marcia and

1259

00:44:08,550 --> 00:44:05,920

then eric and then we'll pick up with

1260

00:44:10,390 --> 00:44:08,560

you when we get back from ksc

1261

00:44:12,309 --> 00:44:10,400

marcia dennis associated press with two

1262

00:44:14,150 --> 00:44:12,319

questions for you mike um there's a

1263

00:44:16,230 --> 00:44:14,160

perception in the public out there i

1264

00:44:17,589 --> 00:44:16,240

think that i hear a lot is that u.s

1265

00:44:20,550 --> 00:44:17,599

human space flight is ending when the

1266

00:44:22,230 --> 00:44:20,560

shuttle retires and john just said that

1267

00:44:24,710 --> 00:44:22,240

the space station is going to be the new

1268

00:44:27,430 --> 00:44:24,720

cornerstone for nasa's human space

1269

00:44:28,550 --> 00:44:27,440

flight program so my question to you is

1270

00:44:31,270 --> 00:44:28,560

how do you

1271

00:44:34,150 --> 00:44:31,280

combat that perception that human space

1272

00:44:36,790 --> 00:44:34,160

flight is ending in another couple weeks

1273

00:44:38,390 --> 00:44:36,800

and do you plan to make any adjustments

1274

00:44:40,230 --> 00:44:38,400

to

1275

00:44:41,510 --> 00:44:40,240

the way the space station is uh

1276

00:44:45,030 --> 00:44:41,520

presented

1277

00:44:46,870 --> 00:44:45,040

to the public to try to counter that

1278

00:44:48,390 --> 00:44:46,880

well first of all i hope to see all you

1279

00:44:50,710 --> 00:44:48,400

guys at our press conferences because

1280

00:44:53,270 --> 00:44:50,720

we'll still have them and just because

1281

00:44:55,430 --> 00:44:53,280

the wing guy's not flying i hope you

1282

00:44:57,109 --> 00:44:55,440

guys will come because

1283

00:44:59,270 --> 00:44:57,119

you know things are going to happen on

1284

00:45:01,430 --> 00:44:59,280

board iss i i can't do anything

1285

00:45:03,510 --> 00:45:01,440

differently operationally but we have

1286

00:45:05,910 --> 00:45:03,520

tried very hard to begin communicating

1287

00:45:07,109 --> 00:45:05,920

the the we've always tried to

1288

00:45:08,790 --> 00:45:07,119

communicate but we're doing things

1289

00:45:09,990 --> 00:45:08,800

different i think the national lab is

1290

00:45:12,230 --> 00:45:10,000

going to make a big difference we're

1291

00:45:14,230 --> 00:45:12,240

really reaching out to a broader uh

1292

00:45:16,309 --> 00:45:14,240

community and it's a community that

1293

00:45:17,349 --> 00:45:16,319

expects in a lot of cases national lab

1294

00:45:20,309 --> 00:45:17,359

efforts

1295

00:45:23,910 --> 00:45:20,319

to

1296

00:45:26,309 --> 00:45:23,920

benefit

1297

00:45:27,750 --> 00:45:26,319

human humanity i mean they want to make

1298

00:45:29,270 --> 00:45:27,760

money but they're it's going to you're

1299

00:45:30,950 --> 00:45:29,280

going to read more about it so i think

1300

00:45:32,950 --> 00:45:30,960

that's going to help

1301

00:45:35,510 --> 00:45:32,960

fuel the system we we still have many

1302

00:45:38,470 --> 00:45:35,520

launches all of which tend to get a lot

1303

00:45:40,230 --> 00:45:38,480

of attention the the launches themselves

1304

00:45:42,390 --> 00:45:40,240

i would expect that the first few

1305

00:45:44,870 --> 00:45:42,400

commercial cargo flights will will have

1306

00:45:46,870 --> 00:45:44,880

a lot of attention

1307

00:45:48,150 --> 00:45:46,880

the commercial crew discussion is uh

1308

00:45:49,349 --> 00:45:48,160

something we've defined all the

1309

00:45:51,270 --> 00:45:49,359

requirements for the commercial crew

1310

00:45:52,870 --> 00:45:51,280

vehicle now we're a big part of that so

1311

00:45:54,630 --> 00:45:52,880

i think that'll help

1312

00:45:56,790 --> 00:45:54,640

um but

1313

00:45:58,710 --> 00:45:56,800

we we do need help explaining to people

1314

00:46:00,710 --> 00:45:58,720

the significance of this and i think

1315

00:46:03,190 --> 00:46:00,720

when we start focusing on utilization

1316

00:46:04,550 --> 00:46:03,200

and spend more time on utilization

1317

00:46:07,510 --> 00:46:04,560

and bring more

1318

00:46:10,309 --> 00:46:07,520

more folks to iss to to utilize it

1319

00:46:12,630 --> 00:46:10,319

it'll it'll sort of self-evolve because

1320

00:46:14,710 --> 00:46:12,640

of the interest you know ams i expect

1321

00:46:16,870 --> 00:46:14,720

those guys are going to come out of the

1322

00:46:18,630 --> 00:46:16,880

woodwork one day and tell us exciting

1323

00:46:19,349 --> 00:46:18,640

stuff it takes time to collect the data

1324

00:46:21,430 --> 00:46:19,359

so

1325

00:46:23,589 --> 00:46:21,440

you know we don't we don't talk much

1326
00:46:24,630 --> 00:46:23,599
about it but you expect exciting things

1327
00:46:28,950 --> 00:46:24,640
there

1328
00:46:30,790 --> 00:46:28,960
created for salmonella it's it's

1329
00:46:32,230 --> 00:46:30,800
only a matter of time based on research

1330
00:46:34,069 --> 00:46:32,240
done on on

1331
00:46:36,710 --> 00:46:34,079
iss they're the same guys that turn

1332
00:46:39,109 --> 00:46:36,720
their attention to uh

1333
00:46:41,030 --> 00:46:39,119
to the msra it's called it's a

1334
00:46:43,109 --> 00:46:41,040
staphylococcus

1335
00:46:45,430 --> 00:46:43,119
that you get is often you find them in

1336
00:46:47,829 --> 00:46:45,440
hospitals very hard to combat

1337
00:46:49,670 --> 00:46:47,839
uh we also have high hopes of solving

1338
00:46:50,950 --> 00:46:49,680

that because of the

1339

00:46:52,710 --> 00:46:50,960

the microgravity environment

1340

00:46:54,630 --> 00:46:52,720

pharmaceuticals in general i think will

1341

00:46:57,109 --> 00:46:54,640

benefit

1342

00:46:58,390 --> 00:46:57,119

so

1343

00:46:59,990 --> 00:46:58,400

you know if we're not going to get the

1344

00:47:00,950 --> 00:47:00,000

same press we're not going to get the

1345

00:47:03,109 --> 00:47:00,960

same

1346

00:47:05,990 --> 00:47:03,119

interest but if we keep station fully

1347

00:47:07,030 --> 00:47:06,000

utilized uh and we we keep folks coming

1348

00:47:09,190 --> 00:47:07,040

and going

1349

00:47:10,710 --> 00:47:09,200

uh and and utilizing for what it's what

1350

00:47:12,950 --> 00:47:10,720

it's supposed to be utilized for them

1351

00:47:14,309 --> 00:47:12,960

then i think it over time it will become

1352

00:47:16,069 --> 00:47:14,319

more obvious

1353

00:47:18,550 --> 00:47:16,079

but that's that's the way we have to do

1354

00:47:20,790 --> 00:47:18,560

it we have to get it fully utilized and

1355

00:47:24,230 --> 00:47:20,800

as long as it's always being utilized to

1356

00:47:26,870 --> 00:47:24,240

its fullest extent for the benefit of of

1357

00:47:27,910 --> 00:47:26,880

the us and our partners then i think

1358

00:47:29,670 --> 00:47:27,920

uh

1359

00:47:31,270 --> 00:47:29,680

it won't matter if we

1360

00:47:32,710 --> 00:47:31,280

if we got a lot of press every day or

1361

00:47:34,150 --> 00:47:32,720

whether we got a little bit just as long

1362

00:47:36,870 --> 00:47:34,160

as we got enough to make sure that we

1363

00:47:39,670 --> 00:47:36,880

were utilizing it to the benefit of all

1364

00:47:41,349 --> 00:47:39,680

so and there's when what john said i i

1365

00:47:43,430 --> 00:47:41,359

believe of course of course i do i'm the

1366

00:47:44,630 --> 00:47:43,440

isis program manager but it is the

1367

00:47:45,990 --> 00:47:44,640

cornerstone it's not just the

1368

00:47:48,630 --> 00:47:46,000

cornerstone because it's the only thing

1369

00:47:51,829 --> 00:47:48,640

that that uh from a human space flight

1370

00:47:52,790 --> 00:47:51,839

that nasa's operating in in uh in orbit

1371

00:47:54,870 --> 00:47:52,800

um

1372

00:47:57,030 --> 00:47:54,880

but the partnership itself is going to

1373

00:47:58,470 --> 00:47:57,040

be how we do exploration and we will do

1374

00:48:00,790 --> 00:47:58,480

exploration it will take us some time

1375

00:48:02,630 --> 00:48:00,800

but we're going to do human exploration

1376

00:48:04,150 --> 00:48:02,640

and and the only way we'll be able to do

1377

00:48:06,150 --> 00:48:04,160

it is with the partners we none of us

1378

00:48:08,870 --> 00:48:06,160

have enough money to do it nor should we

1379

00:48:10,470 --> 00:48:08,880

do it i i believe we shouldn't do it

1380

00:48:13,990 --> 00:48:10,480

as individual countries i think there's

1381

00:48:17,589 --> 00:48:15,349

doing this together and so the

1382

00:48:19,430 --> 00:48:17,599

partnership that we we established with

1383

00:48:20,390 --> 00:48:19,440

the iss taught us quite a bit about how

1384

00:48:22,549 --> 00:48:20,400

to work together

1385

00:48:24,790 --> 00:48:22,559

and that's that sounds simple that is

1386

00:48:27,109 --> 00:48:24,800

incredibly difficult

1387

00:48:28,790 --> 00:48:27,119

just to know how just to feel safe that

1388

00:48:30,470 --> 00:48:28,800

the way they build hardware or the way

1389

00:48:31,510 --> 00:48:30,480

they operate is going to be something

1390

00:48:33,349 --> 00:48:31,520

you can

1391

00:48:34,710 --> 00:48:33,359

can lean on in the future you got to

1392

00:48:35,990 --> 00:48:34,720

discover that together in low earth

1393

00:48:37,430 --> 00:48:36,000

orbit you can't discover that when

1394

00:48:39,510 --> 00:48:37,440

you're between here and mars somewhere

1395

00:48:41,589 --> 00:48:39,520

and figure out that you guessed wrong so

1396

00:48:42,630 --> 00:48:41,599

so this partnership is critical to our

1397

00:48:44,870 --> 00:48:42,640

future

1398

00:48:46,829 --> 00:48:44,880

uh so so while iss is going to play a

1399

00:48:50,069 --> 00:48:46,839

role in technology development for

1400

00:48:52,790 --> 00:48:50,079

exploration um and and maybe a departure

1401

00:48:55,750 --> 00:48:52,800

point who knows how we end up operating

1402

00:48:57,109 --> 00:48:55,760

uh the probably the biggest gain will be

1403

00:48:58,950 --> 00:48:57,119

the fact that we have a relationship

1404

00:49:01,430 --> 00:48:58,960

with the partnerships partners that we

1405

00:49:03,589 --> 00:49:01,440

know how to build spacecraft and fly

1406

00:49:08,150 --> 00:49:03,599

together and we'll do that together

1407

00:49:12,230 --> 00:49:09,910

eric berger with the houston chronicle

1408

00:49:13,510 --> 00:49:12,240

question for john shannon um there's

1409

00:49:14,950 --> 00:49:13,520

obviously going to be a lot of eyes on

1410

00:49:16,390 --> 00:49:14,960

your launch

1411

00:49:17,589 --> 00:49:16,400

and the

1412

00:49:19,349 --> 00:49:17,599

coast of florida is going to be pretty

1413

00:49:21,190 --> 00:49:19,359

busy does that create any unique

1414

00:49:22,790 --> 00:49:21,200

challenges all of the attention all of

1415

00:49:25,270 --> 00:49:22,800

the people in the area

1416

00:49:27,349 --> 00:49:25,280

on launch day concerns about making sure

1417

00:49:29,109 --> 00:49:27,359

employees get to work on time or are

1418

00:49:31,670 --> 00:49:29,119

there any complications associated with

1419

00:49:33,910 --> 00:49:31,680

that that you're planning for

1420

00:49:37,190 --> 00:49:33,920

well we've uh we've faced at the last uh

1421

00:49:39,750 --> 00:49:37,200

the last few launches um

1422

00:49:42,630 --> 00:49:39,760

you know we'll just see how it goes

1423

00:49:44,630 --> 00:49:42,640

if we end up scrubbing on july 8th

1424

00:49:46,710 --> 00:49:44,640

depending on when we you know would have

1425

00:49:48,950 --> 00:49:46,720

the scrub we'll decide uh whether we're

1426

00:49:50,630 --> 00:49:48,960

going to do a 24 or a 48 hour turnaround

1427

00:49:52,390 --> 00:49:50,640

based on traffic

1428

00:49:54,390 --> 00:49:52,400

we do expect a significant number of

1429

00:49:56,630 --> 00:49:54,400

people you know being summer vacation in

1430

00:49:58,950 --> 00:49:56,640

the last flight and there's a lot of

1431

00:50:00,069 --> 00:49:58,960

excitement down in florida to do that

1432

00:50:00,950 --> 00:50:00,079

um

1433

00:50:02,790 --> 00:50:00,960

you know

1434

00:50:04,950 --> 00:50:02,800

if we'll deal with traffic and we'll

1435

00:50:06,630 --> 00:50:04,960

deal with when's the right time to bring

1436

00:50:07,750 --> 00:50:06,640

the team in um

1437

00:50:09,109 --> 00:50:07,760

it doesn't make sense to make the

1438

00:50:10,710 --> 00:50:09,119

decision now because you'll look at

1439

00:50:12,950 --> 00:50:10,720

weather and other things we can't

1440

00:50:15,589 --> 00:50:12,960

predict at this point from a team

1441

00:50:16,870 --> 00:50:15,599

standpoint though

1442

00:50:18,549 --> 00:50:16,880

there's no difference in the way we're

1443

00:50:20,309 --> 00:50:18,559

going to operate in the way we're going

1444

00:50:23,510 --> 00:50:20,319

to address

1445

00:50:24,950 --> 00:50:23,520

risks or problems or anything else

1446

00:50:27,030 --> 00:50:24,960

you know there was some speculation that

1447

00:50:30,309 --> 00:50:27,040

that we would feel pressure with with

1448

00:50:32,790 --> 00:50:30,319

the president and his family coming down

1449

00:50:35,670 --> 00:50:32,800

a couple tries ago and and having

1450

00:50:37,430 --> 00:50:35,680

it was predicted 750 000 people and

1451

00:50:39,990 --> 00:50:37,440

and you just don't feel any of that

1452

00:50:41,670 --> 00:50:40,000

inside the launch control center at all

1453

00:50:43,670 --> 00:50:41,680

we ended up scrubbing for uh for a

1454

00:50:45,670 --> 00:50:43,680

redundant heater on a tripoli redundant

1455

00:50:47,670 --> 00:50:45,680

system but it was the right call to make

1456

00:50:49,910 --> 00:50:47,680

because if if we'd lost the other heater

1457

00:50:52,870 --> 00:50:49,920

you potentially could put the crew into

1458

00:50:54,549 --> 00:50:52,880

into a bad position during re-entry and

1459

00:50:56,790 --> 00:50:54,559

you know i that that's just the way the

1460

00:50:58,549 --> 00:50:56,800

team has learned to operate it's part of

1461

00:50:59,430 --> 00:50:58,559

a few questions ago we were talking

1462

00:51:01,750 --> 00:50:59,440

about

1463

00:51:03,589 --> 00:51:01,760

you know the the

1464

00:51:04,950 --> 00:51:03,599

not as obvious legacies of the shuttle

1465

00:51:08,230 --> 00:51:04,960

program that's another one of them you

1466

00:51:09,190 --> 00:51:08,240

know is that uh that despite being in a

1467

00:51:14,069 --> 00:51:09,200

in a

1468

00:51:15,750 --> 00:51:14,079

you and and

1469

00:51:18,309 --> 00:51:15,760

and not just second-guessing what you do

1470

00:51:19,990 --> 00:51:18,319

but second-guessing what you might do

1471

00:51:22,470 --> 00:51:20,000

you know the team operates extremely

1472

00:51:24,309 --> 00:51:22,480

well and and extremely safely and has

1473

00:51:26,309 --> 00:51:24,319

developed a set of operating criteria

1474

00:51:29,349 --> 00:51:26,319

and rules that they follow uh to the

1475

00:51:31,190 --> 00:51:29,359

letter and uh i just think uh that when

1476

00:51:32,870 --> 00:51:31,200

we get there on launch day we'll be in

1477

00:51:35,030 --> 00:51:32,880

the control center working any issues

1478

00:51:36,950 --> 00:51:35,040

that come up and and what goes on

1479

00:51:39,910 --> 00:51:36,960

outside is uh is not going to play any

1480

00:51:43,190 --> 00:51:41,430

okay let's see let's get marsha's

1481

00:51:44,870 --> 00:51:43,200

follow-up back on the front row and then

1482

00:51:46,790 --> 00:51:44,880

we're going to go to ksc

1483

00:51:48,150 --> 00:51:46,800

quick easy question mike all the food

1484

00:51:49,670 --> 00:51:48,160

that's going up

1485

00:51:51,589 --> 00:51:49,680

it's been described as a year's worth of

1486

00:51:53,589 --> 00:51:51,599

food is it all american food and i'm

1487

00:51:55,990 --> 00:51:53,599

assuming it all has an expiration date

1488

00:51:57,990 --> 00:51:56,000

of 12 months or how does or is it a

1489

00:51:59,190 --> 00:51:58,000

combination of international type things

1490

00:52:01,990 --> 00:51:59,200

let's see the

1491

00:52:03,750 --> 00:52:02,000

mplm is about a third full with few with

1492

00:52:05,190 --> 00:52:03,760

food alone it doesn't quite get us to

1493

00:52:07,030 --> 00:52:05,200

the end of the year so we're flying food

1494

00:52:08,870 --> 00:52:07,040

on the atvs in hdd as well but the

1495

00:52:10,309 --> 00:52:08,880

combination gets us

1496

00:52:12,390 --> 00:52:10,319

at least a year yeah they have

1497

00:52:14,870 --> 00:52:12,400

expiration dates it's not it's not

1498

00:52:17,109 --> 00:52:14,880

always a year just depends on what the

1499

00:52:19,109 --> 00:52:17,119

food is the expiration dates are very

1500

00:52:20,870 --> 00:52:19,119

conservative so occasionally we we can

1501
00:52:22,870 --> 00:52:20,880
go beyond the expiration date we talk

1502
00:52:24,630 --> 00:52:22,880
about it before we do that but

1503
00:52:27,349 --> 00:52:24,640
but none of our food's going to expire

1504
00:52:29,109 --> 00:52:27,359
in that period that we're on orbit so

1505
00:52:30,549 --> 00:52:29,119
we protected for that we eat you know

1506
00:52:33,270 --> 00:52:30,559
first food that comes up gets eaten

1507
00:52:34,870 --> 00:52:33,280
first and and this will be eaten at the

1508
00:52:38,790 --> 00:52:34,880
end of 2012 and the expiration date

1509
00:52:42,309 --> 00:52:40,710
oh yes it's uh yeah we're carrying all

1510
00:52:44,470 --> 00:52:42,319
u.s food the russians take all their

1511
00:52:46,150 --> 00:52:44,480
food up on progresses and and if we

1512
00:52:47,430 --> 00:52:46,160
carry u.s food for russians so the

1513
00:52:48,950 --> 00:52:47,440

russians are allowed to eat our food and

1514

00:52:51,430 --> 00:52:48,960

we're allowed to eat their food but our

1515

00:52:53,349 --> 00:52:51,440

agreement is we fly it up on our own

1516

00:52:54,790 --> 00:52:53,359

vehicles because it's just

1517

00:52:56,470 --> 00:52:54,800

they have to accommodate the up mass but

1518

00:52:58,950 --> 00:52:56,480

it's easier than shipping it to another

1519

00:53:00,630 --> 00:52:58,960

country and then flying

1520

00:53:02,549 --> 00:53:00,640

okay let's go down to the kennedy space

1521

00:53:03,990 --> 00:53:02,559

center in florida for a couple of

1522

00:53:08,390 --> 00:53:04,000

questions down there and then we'll be

1523

00:53:14,230 --> 00:53:11,109

hi it's james dean from florida today

1524

00:53:16,150 --> 00:53:14,240

uh john you mentioned earlier back in

1525

00:53:17,109 --> 00:53:16,160

like the january time frame working

1526
00:53:18,630 --> 00:53:17,119
under some

1527
00:53:19,829 --> 00:53:18,640
tight budget constraints i just wondered

1528
00:53:21,270 --> 00:53:19,839
if you could

1529
00:53:22,549 --> 00:53:21,280
could touch on the

1530
00:53:24,710 --> 00:53:22,559
the budget

1531
00:53:27,670 --> 00:53:24,720
situation a little bit in terms of

1532
00:53:29,589 --> 00:53:27,680
um is that why you you know really had

1533
00:53:30,870 --> 00:53:29,599
to go fly now i know at one point we

1534
00:53:32,790 --> 00:53:30,880
were talking about

1535
00:53:34,630 --> 00:53:32,800
um obviously you would think flying as

1536
00:53:35,670 --> 00:53:34,640
late as possible would be to everyone's

1537
00:53:37,990 --> 00:53:35,680
benefit

1538
00:53:40,150 --> 00:53:38,000

um but is that you know why you're going

1539

00:53:42,309 --> 00:53:40,160

now we've been told that you know if if

1540

00:53:43,990 --> 00:53:42,319

there for some reason had to be an

1541

00:53:46,150 --> 00:53:44,000

extended slip you could handle that but

1542

00:53:47,829 --> 00:53:46,160

you know where do you stand in terms of

1543

00:53:49,349 --> 00:53:47,839

money and is that what's driving your

1544

00:53:51,349 --> 00:53:49,359

your schedule right now

1545

00:53:53,510 --> 00:53:51,359

sure um

1546

00:53:55,030 --> 00:53:53,520

well you know you talked about january

1547

00:53:56,790 --> 00:53:55,040

and in january there were just a lot of

1548

00:53:58,390 --> 00:53:56,800

unknowns

1549

00:53:59,829 --> 00:53:58,400

we didn't know at the time

1550

00:54:04,390 --> 00:53:59,839

how

1551
00:54:05,670 --> 00:54:04,400
going to delay us

1552
00:54:07,430 --> 00:54:05,680
we didn't know if we were going to bring

1553
00:54:09,349 --> 00:54:07,440
a significant number of workforce back

1554
00:54:10,470 --> 00:54:09,359
on

1555
00:54:11,670 --> 00:54:10,480
we were

1556
00:54:13,990 --> 00:54:11,680
just

1557
00:54:15,510 --> 00:54:14,000
getting through

1558
00:54:18,069 --> 00:54:15,520
trying to understand

1559
00:54:19,349 --> 00:54:18,079
the budgetary impact of the layoffs that

1560
00:54:21,829 --> 00:54:19,359
we had

1561
00:54:23,589 --> 00:54:21,839
late last year

1562
00:54:25,109 --> 00:54:23,599
you know back when we were fully

1563
00:54:27,430 --> 00:54:25,119

operating in the shuttle program and

1564

00:54:29,270 --> 00:54:27,440

producing and integrating and moving

1565

00:54:31,270 --> 00:54:29,280

things across country

1566

00:54:32,870 --> 00:54:31,280

we ran at about 200 million dollars a

1567

00:54:34,790 --> 00:54:32,880

month

1568

00:54:36,470 --> 00:54:34,800

after the layoffs and when we just went

1569

00:54:39,430 --> 00:54:36,480

down to a sustaining engineering and

1570

00:54:40,950 --> 00:54:39,440

operations team we were at around 115

1571

00:54:43,910 --> 00:54:40,960

million dollars a month but we hadn't

1572

00:54:46,710 --> 00:54:43,920

really realized that yet we we hadn't

1573

00:54:49,270 --> 00:54:46,720

we expected that but but but seeing it

1574

00:54:51,270 --> 00:54:49,280

as you were as you were going through

1575

00:54:53,430 --> 00:54:51,280

the month by month budget review and

1576
00:54:54,950 --> 00:54:53,440
making sure that was true was uh

1577
00:54:56,630 --> 00:54:54,960
was important

1578
00:54:58,789 --> 00:54:56,640
so there were a lot of unknowns in in

1579
00:55:00,309 --> 00:54:58,799
january and

1580
00:55:01,670 --> 00:55:00,319
and we hit our budget targets we

1581
00:55:03,349 --> 00:55:01,680
actually were under our budget targets

1582
00:55:07,190 --> 00:55:03,359
every month

1583
00:55:09,990 --> 00:55:07,200
resolved the external tank issue we got

1584
00:55:12,549 --> 00:55:10,000
permission through the administration

1585
00:55:14,710 --> 00:55:12,559
and in the congress through through the

1586
00:55:17,670 --> 00:55:14,720
authorization bill

1587
00:55:20,630 --> 00:55:17,680
to go fly 135 it was contingent on some

1588
00:55:22,309 --> 00:55:20,640

safety reviews we did those and and they

1589

00:55:25,030 --> 00:55:22,319

were accepted

1590

00:55:26,870 --> 00:55:25,040

so it all all just kind of came together

1591

00:55:27,990 --> 00:55:26,880

we're still running it at a pretty low

1592

00:55:29,349 --> 00:55:28,000

rate

1593

00:55:31,750 --> 00:55:29,359

with the program

1594

00:55:33,349 --> 00:55:31,760

and even with all of our tnr activities

1595

00:55:34,549 --> 00:55:33,359

and a lot of severance that has been

1596

00:55:35,910 --> 00:55:34,559

paid out

1597

00:55:38,390 --> 00:55:35,920

we're still

1598

00:55:40,309 --> 00:55:38,400

under you know under about 140 million

1599

00:55:42,390 --> 00:55:40,319

dollars a month and that's pretty

1600

00:55:44,470 --> 00:55:42,400

remarkable so i think we're in great

1601
00:55:45,349 --> 00:55:44,480
shape all the way to

1602
00:55:48,630 --> 00:55:45,359
probably

1603
00:55:50,950 --> 00:55:48,640
uh september time frame we could we

1604
00:55:52,549 --> 00:55:50,960
could delay out to that that as far but

1605
00:55:54,230 --> 00:55:52,559
if we did that we would be taking money

1606
00:55:55,750 --> 00:55:54,240
away from the transition and retirement

1607
00:55:57,510 --> 00:55:55,760
activities

1608
00:55:59,109 --> 00:55:57,520
which you do have to fund at some point

1609
00:56:01,430 --> 00:55:59,119
which would take away from some future

1610
00:56:03,510 --> 00:56:01,440
activities so the sooner we can can get

1611
00:56:05,430 --> 00:56:03,520
this flight flown and button up the

1612
00:56:07,589 --> 00:56:05,440
program and uh

1613
00:56:09,829 --> 00:56:07,599

and uh and start on our transition

1614

00:56:14,829 --> 00:56:09,839

retirement activities the the better off

1615

00:56:20,230 --> 00:56:17,430

agency thanks and

1616

00:56:22,549 --> 00:56:20,240

um just regarding the uh the shuttle

1617

00:56:24,789 --> 00:56:22,559

retirement happening now

1618

00:56:27,109 --> 00:56:24,799

um we we know of course the shuttles

1619

00:56:28,230 --> 00:56:27,119

could fly many more missions but

1620

00:56:30,230 --> 00:56:28,240

uh you know

1621

00:56:32,150 --> 00:56:30,240

station assembly its primary mission is

1622

00:56:34,069 --> 00:56:32,160

complete

1623

00:56:35,510 --> 00:56:34,079

i'm not sure what

1624

00:56:36,870 --> 00:56:35,520

the shuttle might do

1625

00:56:39,030 --> 00:56:36,880

moving forward if you were able to

1626
00:56:40,390 --> 00:56:39,040
continue flying other than running mplms

1627
00:56:42,630 --> 00:56:40,400
and that sort of stuff

1628
00:56:43,750 --> 00:56:42,640
back and forth

1629
00:56:45,510 --> 00:56:43,760
i just wondered if you could speak a

1630
00:56:48,150 --> 00:56:45,520
little bit to um do you think it's

1631
00:56:50,870 --> 00:56:48,160
appropriate to stop flying now because

1632
00:56:52,230 --> 00:56:50,880
you've essentially completed the mission

1633
00:56:53,589 --> 00:56:52,240
or

1634
00:56:55,349 --> 00:56:53,599
could you come up with lots of things to

1635
00:56:57,190 --> 00:56:55,359
do if you had that opportunity to keep

1636
00:56:58,710 --> 00:56:57,200
going

1637
00:57:01,349 --> 00:56:58,720
i can always come up with lots of things

1638
00:57:03,030 --> 00:57:01,359

to do with the shuttle um

1639

00:57:04,950 --> 00:57:03,040

i think that's what we would

1640

00:57:06,870 --> 00:57:04,960

that was the proposal that when we were

1641

00:57:09,750 --> 00:57:06,880

kind of knocking around

1642

00:57:11,109 --> 00:57:09,760

um shuttle retirement and what's next

1643

00:57:14,470 --> 00:57:11,119

you know and the thought was that you

1644

00:57:17,030 --> 00:57:14,480

would you would fly it twice a year

1645

00:57:20,390 --> 00:57:17,040

to provide the the logistics supply

1646

00:57:21,750 --> 00:57:20,400

chain to um to the iss you know now we

1647

00:57:23,670 --> 00:57:21,760

have a

1648

00:57:26,870 --> 00:57:23,680

at least in development is a

1649

00:57:27,829 --> 00:57:26,880

multinational redundant logistics supply

1650

00:57:31,109 --> 00:57:27,839

chain

1651

00:57:33,510 --> 00:57:31,119

going to iss which i think is is is

1652

00:57:36,950 --> 00:57:33,520

pretty strong and having the shuttle go

1653

00:57:38,549 --> 00:57:36,960

away is is causing it to get even more

1654

00:57:39,270 --> 00:57:38,559

scrutiny to make sure that it's going to

1655

00:57:41,829 --> 00:57:39,280

be

1656

00:57:43,589 --> 00:57:41,839

sufficient

1657

00:57:45,190 --> 00:57:43,599

you know james the the bottom line is

1658

00:57:47,270 --> 00:57:45,200

there's not enough money

1659

00:57:48,549 --> 00:57:47,280

would i like to fly shuttle two times a

1660

00:57:50,870 --> 00:57:48,559

year to go

1661

00:57:52,630 --> 00:57:50,880

ensure that iss was in the best possible

1662

00:57:55,030 --> 00:57:52,640

shape or maybe go back up to hubble

1663

00:57:56,870 --> 00:57:55,040

again or maybe do who knows what

1664

00:57:58,870 --> 00:57:56,880

sure you know i think it's a it's a

1665

00:58:00,710 --> 00:57:58,880

national capability

1666

00:58:03,190 --> 00:58:00,720

that we're losing

1667

00:58:05,190 --> 00:58:03,200

but again you weigh that against you've

1668

00:58:07,750 --> 00:58:05,200

done what you set out to do with the

1669

00:58:10,150 --> 00:58:07,760

shuttle we we got hubble in extremely

1670

00:58:12,789 --> 00:58:10,160

good shape we've got iss in extremely

1671

00:58:17,990 --> 00:58:16,309

now we have other areas coming up to to

1672

00:58:19,510 --> 00:58:18,000

take over the leo functions that the

1673

00:58:21,270 --> 00:58:19,520

shuttle did

1674

00:58:24,069 --> 00:58:21,280

we can take that money and i think just

1675

00:58:25,910 --> 00:58:24,079

as importantly take that workforce

1676
00:58:28,950 --> 00:58:25,920
and apply it to

1677
00:58:31,190 --> 00:58:28,960
the next leading edge and expand the the

1678
00:58:32,549 --> 00:58:31,200
sphere of operations that

1679
00:58:34,630 --> 00:58:32,559
that we

1680
00:58:36,630 --> 00:58:34,640
we do in human space flight and i think

1681
00:58:37,910 --> 00:58:36,640
that is extremely important

1682
00:58:40,789 --> 00:58:37,920
and what we're doing is we're

1683
00:58:43,750 --> 00:58:40,799
sacrificing the shuttle uh to enable us

1684
00:58:44,630 --> 00:58:43,760
to be able to to take that next step and

1685
00:58:46,870 --> 00:58:44,640
um

1686
00:58:50,710 --> 00:58:46,880
if we were going to retire the shuttle

1687
00:58:52,470 --> 00:58:50,720
this is the time to do it uh it is

1688
00:58:53,829 --> 00:58:52,480

the isis couldn't be in better shape i

1689

00:58:55,190 --> 00:58:53,839

think than it is right now we're pretty

1690

00:58:56,630 --> 00:58:55,200

much out of volume we're gonna we're

1691

00:58:58,309 --> 00:58:56,640

gonna pack it full

1692

00:58:59,589 --> 00:58:58,319

uh before we're done

1693

00:59:01,109 --> 00:58:59,599

and uh

1694

00:59:04,150 --> 00:59:01,119

and while we can always come up with

1695

00:59:06,309 --> 00:59:04,160

other missions it's uh it's an okay time

1696

00:59:08,230 --> 00:59:06,319

and uh and i think that that we're gonna

1697

00:59:10,549 --> 00:59:08,240

just expand the breadth of things that

1698

00:59:12,870 --> 00:59:10,559

that we do as a nation and as an

1699

00:59:14,470 --> 00:59:12,880

international partner and uh so that's

1700

00:59:15,910 --> 00:59:14,480

that's kind of how i came to peace with

1701

00:59:20,390 --> 00:59:15,920

the with all the decisions that were

1702

00:59:27,430 --> 00:59:23,510

uh todd halverson of florida today uh

1703

00:59:29,589 --> 00:59:27,440

for one or both of the uh gentlemen um

1704

00:59:35,109 --> 00:59:29,599

i'm thinking back over the assembly

1705

00:59:36,549 --> 00:59:35,119

period and uh the 159 or 160 spacewalks

1706

00:59:38,309 --> 00:59:36,559

that were

1707

00:59:40,470 --> 00:59:38,319

completed in the assembly and

1708

00:59:42,789 --> 00:59:40,480

maintenance of the station and of course

1709

00:59:44,549 --> 00:59:42,799

we have the last one last spacewalker

1710

00:59:46,549 --> 00:59:44,559

the shuttle era coming up on this

1711

00:59:48,870 --> 00:59:46,559

mission

1712

00:59:50,470 --> 00:59:48,880

i'm wondering what you

1713

00:59:52,549 --> 00:59:50,480

would uh

1714

00:59:55,030 --> 00:59:52,559

what you would pick out as the most

1715

00:59:55,990 --> 00:59:55,040

significant problems encountered

1716

00:59:58,390 --> 00:59:56,000

during

1717

01:00:01,030 --> 00:59:58,400

spacewalking assembly and and i'm

1718

01:00:04,549 --> 01:00:01,040

wondering if you're surprised that there

1719

01:00:07,030 --> 01:00:04,559

are so few to point to

1720

01:00:09,589 --> 01:00:07,040

yeah todd i tell you the um

1721

01:00:12,230 --> 01:00:09,599

if you go back to the

1722

01:00:14,630 --> 01:00:12,240

early 90s time frame

1723

01:00:17,750 --> 01:00:14,640

it was uh

1724

01:00:19,349 --> 01:00:17,760

it was pretty intimidating um when we

1725

01:00:20,789 --> 01:00:19,359

looked at how in the world we were going

1726

01:00:22,230 --> 01:00:20,799

to assemble

1727

01:00:23,750 --> 01:00:22,240

the iss

1728

01:00:25,589 --> 01:00:23,760

and the number of evas that were

1729

01:00:27,750 --> 01:00:25,599

required and we referred to that you all

1730

01:00:29,670 --> 01:00:27,760

know as the eva wall you know this wall

1731

01:00:31,109 --> 01:00:29,680

of evas that we would have to do and

1732

01:00:32,870 --> 01:00:31,119

they would have to be successful in

1733

01:00:34,230 --> 01:00:32,880

order for the iss to be a functioning

1734

01:00:35,829 --> 01:00:34,240

vehicle

1735

01:00:38,549 --> 01:00:35,839

and so we started doing some tests in

1736

01:00:40,309 --> 01:00:38,559

the payload bay before iss was ever

1737

01:00:41,030 --> 01:00:40,319

the first element had ever been launched

1738

01:00:51,910 --> 01:00:41,040

and

1739

01:00:54,870 --> 01:00:51,920

those that test program that we did i

1740

01:00:56,470 --> 01:00:54,880

think really helped us understand

1741

01:00:59,270 --> 01:00:56,480

a lot of different design features that

1742

01:01:01,589 --> 01:00:59,280

we would need to to make sure were were

1743

01:01:04,069 --> 01:01:01,599

included in the iss design

1744

01:01:07,270 --> 01:01:04,079

and uh you know we had the the brand new

1745

01:01:08,789 --> 01:01:07,280

uh nbl out at sunny carter training

1746

01:01:11,190 --> 01:01:08,799

facility that

1747

01:01:12,710 --> 01:01:11,200

that uh we started using and in

1748

01:01:15,349 --> 01:01:12,720

practicing and

1749

01:01:16,710 --> 01:01:15,359

you know to do a space walk is not well

1750

01:01:18,470 --> 01:01:16,720

let's put on our suit and go outside and

1751
01:01:20,789 --> 01:01:18,480
figure out where our tools are i mean it

1752
01:01:21,910 --> 01:01:20,799
is incredibly choreographed incredibly

1753
01:01:22,870 --> 01:01:21,920
scripted

1754
01:01:25,190 --> 01:01:22,880
um

1755
01:01:27,190 --> 01:01:25,200
and and that is why and i think this is

1756
01:01:29,510 --> 01:01:27,200
just a nasa thing right is that we

1757
01:01:31,910 --> 01:01:29,520
practice a lot we practice everything a

1758
01:01:33,589 --> 01:01:31,920
whole lot and we practice contingencies

1759
01:01:35,270 --> 01:01:33,599
a lot and we we think really hard about

1760
01:01:36,789 --> 01:01:35,280
what could go wrong and then we practice

1761
01:01:38,069 --> 01:01:36,799
on those things and we think about the

1762
01:01:40,150 --> 01:01:38,079
next thing that could go wrong and

1763
01:01:41,990 --> 01:01:40,160

practice those that's why the evas and

1764

01:01:43,990 --> 01:01:42,000

the spacewalks were successful

1765

01:01:46,309 --> 01:01:44,000

when i look at it now you know iss is

1766

01:01:47,349 --> 01:01:46,319

enormous it is so big

1767

01:01:49,190 --> 01:01:47,359

and if you look at some of the

1768

01:01:51,589 --> 01:01:49,200

translation paths they are just going

1769

01:01:53,030 --> 01:01:51,599

and going and going we never

1770

01:01:54,950 --> 01:01:53,040

really had to deal with that of course

1771

01:01:56,309 --> 01:01:54,960

with the with the the shuttle payload

1772

01:01:57,750 --> 01:01:56,319

bay right you're not translating very

1773

01:01:59,430 --> 01:01:57,760

far and if you have to go very far you

1774

01:02:01,670 --> 01:01:59,440

use the arm to take you there

1775

01:02:04,069 --> 01:02:01,680

um that was the thing that i think just

1776

01:02:05,349 --> 01:02:04,079

amazed me and as we started to do that

1777

01:02:06,870 --> 01:02:05,359

we found out we had a problem with our

1778

01:02:09,349 --> 01:02:06,880

gloves

1779

01:02:10,870 --> 01:02:09,359

that whether from micrometeoroid hits or

1780

01:02:12,309 --> 01:02:10,880

other sharp edges or something else we

1781

01:02:14,870 --> 01:02:12,319

were getting some cuts in the gloves

1782

01:02:16,710 --> 01:02:14,880

which really alarmed us and very quickly

1783

01:02:19,349 --> 01:02:16,720

the team was able to turn around and

1784

01:02:21,349 --> 01:02:19,359

reinforce critical areas in those gloves

1785

01:02:23,029 --> 01:02:21,359

and we went from having a major problem

1786

01:02:24,789 --> 01:02:23,039

that we were really concerned about to

1787

01:02:28,309 --> 01:02:24,799

uh to something that we don't even hear

1788

01:02:31,589 --> 01:02:28,319

about anymore um so i think the key to

1789

01:02:33,910 --> 01:02:31,599

the space walks and the in the uh

1790

01:02:35,670 --> 01:02:33,920

what has been done

1791

01:02:38,710 --> 01:02:35,680

to make sure they're all successful is

1792

01:02:40,150 --> 01:02:38,720

just preparation it just absolute

1793

01:02:42,150 --> 01:02:40,160

100

1794

01:02:42,950 --> 01:02:42,160

preparation to to get ready to think

1795

01:02:47,589 --> 01:02:42,960

about

1796

01:02:49,750 --> 01:02:47,599

it because we debrief quite a bit after

1797

01:02:51,670 --> 01:02:49,760

each flight after each spacewalk learn

1798

01:02:54,150 --> 01:02:51,680

what went well what did not go well and

1799

01:02:57,270 --> 01:02:54,160

then go modify what you do the next time

1800

01:03:00,230 --> 01:02:57,280

and that continuous learning behavior

1801

01:03:01,190 --> 01:03:00,240

i think is uh is key to it that and and

1802

01:03:07,190 --> 01:03:01,200

just

1803

01:03:12,710 --> 01:03:11,670

uh thanks and um i'm wondering uh

1804

01:03:15,910 --> 01:03:12,720

people

1805

01:03:18,549 --> 01:03:15,920

after we'll stop on this mission are

1806

01:03:21,829 --> 01:03:18,559

obviously going to look back and

1807

01:03:27,109 --> 01:03:24,309

inevitably be some folks who ask the

1808

01:03:29,510 --> 01:03:27,119

question was the shuttle program

1809

01:03:31,270 --> 01:03:29,520

worth it was

1810

01:03:34,230 --> 01:03:31,280

it worked doing all of these flights to

1811

01:03:36,789 --> 01:03:34,240

build the space station and uh was the

1812

01:03:39,750 --> 01:03:36,799

shuttle program worth the expense that

1813

01:03:42,390 --> 01:03:39,760

uh the american taxpayers uh put into it

1814

01:03:44,870 --> 01:03:42,400

and i'm wondering what your answer would

1815

01:03:47,670 --> 01:03:44,880

be to that question

1816

01:03:48,470 --> 01:03:47,680

yeah i think todd that's a very valuable

1817

01:03:50,549 --> 01:03:48,480

uh

1818

01:03:51,829 --> 01:03:50,559

thing to ask about any endeavor right is

1819

01:03:53,430 --> 01:03:51,839

when you when you look back at it

1820

01:03:54,710 --> 01:03:53,440

because that's how you learn and you can

1821

01:03:57,190 --> 01:03:54,720

modify maybe what you're going to do

1822

01:03:58,549 --> 01:03:57,200

next time based on what you just learned

1823

01:04:00,789 --> 01:03:58,559

from this one

1824

01:04:02,549 --> 01:04:00,799

i think that you know the people that

1825

01:04:05,990 --> 01:04:02,559

don't like the shuttle and they're out

1826

01:04:07,750 --> 01:04:06,000

there um they'll go back to 1972 and say

1827

01:04:09,510 --> 01:04:07,760

you know wow you guys said you would you

1828

01:04:11,349 --> 01:04:09,520

know fly every week and it would be

1829

01:04:13,190 --> 01:04:11,359

regular access and it would cost i don't

1830

01:04:15,589 --> 01:04:13,200

know what what the number is but

1831

01:04:17,750 --> 01:04:15,599

a very low amount of dollars to go fly a

1832

01:04:19,990 --> 01:04:17,760

flight you guys didn't make that so the

1833

01:04:21,349 --> 01:04:20,000

30 years of shuttle operations was was a

1834

01:04:23,029 --> 01:04:21,359

failure and

1835

01:04:24,710 --> 01:04:23,039

that's ridiculous

1836

01:04:26,470 --> 01:04:24,720

you know the shuttle

1837

01:04:28,950 --> 01:04:26,480

that may have been the initial thought

1838

01:04:31,029 --> 01:04:28,960

but to have that thought after 30

1839

01:04:31,990 --> 01:04:31,039

flights human space flights for the

1840

01:04:34,789 --> 01:04:32,000

nation

1841

01:04:35,990 --> 01:04:34,799

we were not in a position to to say that

1842

01:04:38,710 --> 01:04:36,000

that was something that we thought we

1843

01:04:41,990 --> 01:04:40,309

i think it would it would be very naive

1844

01:04:43,750 --> 01:04:42,000

to do that after such a limited amount

1845

01:04:45,430 --> 01:04:43,760

of experience

1846

01:04:48,549 --> 01:04:45,440

what the shuttle was

1847

01:04:52,390 --> 01:04:48,559

is it was an unbelievable learning tool

1848

01:04:55,029 --> 01:04:52,400

and we were able to to take this vehicle

1849

01:04:57,029 --> 01:04:55,039

that is incredibly capable you can do

1850

01:04:58,549 --> 01:04:57,039

robotics you can do spacewalks you can

1851
01:05:00,230 --> 01:04:58,559
do payload deploys you need payload

1852
01:05:02,309 --> 01:05:00,240
retrieves you can do earth observation

1853
01:05:04,390 --> 01:05:02,319
you can do science laboratories on and

1854
01:05:06,309 --> 01:05:04,400
on um

1855
01:05:08,069 --> 01:05:06,319
we were able to learn how to do all

1856
01:05:10,069 --> 01:05:08,079
those different kinds of activities in

1857
01:05:11,510 --> 01:05:10,079
in low earth orbit we were able to learn

1858
01:05:12,789 --> 01:05:11,520
how to keep people

1859
01:05:14,630 --> 01:05:12,799
healthy

1860
01:05:16,230 --> 01:05:14,640
things like space adaptation syndrome

1861
01:05:18,150 --> 01:05:16,240
which was a big problem in the in the

1862
01:05:19,990 --> 01:05:18,160
early shuttle flights you don't hear

1863
01:05:21,829 --> 01:05:20,000

about it much anymore

1864

01:05:23,670 --> 01:05:21,839

different things like bone loss you know

1865

01:05:24,390 --> 01:05:23,680

on iss they're doing the things required

1866

01:05:34,870 --> 01:05:24,400

to

1867

01:05:37,109 --> 01:05:34,880

shuttle was amazing and we built this

1868

01:05:39,750 --> 01:05:37,119

tremendous body of knowledge

1869

01:05:41,510 --> 01:05:39,760

in how to not just get off planet earth

1870

01:05:44,230 --> 01:05:41,520

but once you're off planet earth how to

1871

01:05:45,910 --> 01:05:44,240

operate in that environment and uh and

1872

01:05:49,750 --> 01:05:45,920

so now you know

1873

01:05:51,430 --> 01:05:49,760

the if i i can't put a dollar

1874

01:05:54,069 --> 01:05:51,440

value on that

1875

01:05:56,710 --> 01:05:54,079

national capability on that

1876

01:05:59,270 --> 01:05:56,720

uh that body of knowledge

1877

01:06:01,349 --> 01:05:59,280

we have it now and and now we need to

1878

01:06:04,150 --> 01:06:01,359

make sure that we use it and that we

1879

01:06:07,109 --> 01:06:04,160

move forward and our next programs build

1880

01:06:08,950 --> 01:06:07,119

on that body of knowledge for beyond low

1881

01:06:09,750 --> 01:06:08,960

earth orbit activities

1882

01:06:11,510 --> 01:06:09,760

so

1883

01:06:12,630 --> 01:06:11,520

you know how do you put a how do you put

1884

01:06:15,349 --> 01:06:12,640

a dollar

1885

01:06:17,670 --> 01:06:15,359

amount on something that is priceless in

1886

01:06:19,670 --> 01:06:17,680

my mind and that is

1887

01:06:21,510 --> 01:06:19,680

what we have learned over doing shuttle

1888

01:06:23,510 --> 01:06:21,520

operations for 30 years

1889

01:06:25,589 --> 01:06:23,520

we've matured as a space program we've

1890

01:06:28,470 --> 01:06:25,599

matured as a as a nation in how to go

1891

01:06:29,990 --> 01:06:28,480

into space what to expect in space

1892

01:06:32,789 --> 01:06:30,000

even if you take something as

1893

01:06:34,390 --> 01:06:32,799

devastating as the accidents

1894

01:06:35,270 --> 01:06:34,400

what did we learn out of that well we

1895

01:06:39,430 --> 01:06:35,280

learned

1896

01:06:40,950 --> 01:06:39,440

problems that you have to go back and

1897

01:06:42,789 --> 01:06:40,960

look at flight history and you have to

1898

01:06:44,309 --> 01:06:42,799

understand exactly what you have and

1899

01:06:46,069 --> 01:06:44,319

exactly what you're flying and we also

1900

01:06:47,430 --> 01:06:46,079

learn resilience i mean the worst thing

1901

01:06:49,510 --> 01:06:47,440

that could possibly happen to us

1902

01:06:51,829 --> 01:06:49,520

happened to us and we still picked

1903

01:06:54,470 --> 01:06:51,839

ourselves back up and fixed our problems

1904

01:06:56,069 --> 01:06:54,480

and had the courage to go fly again

1905

01:06:58,150 --> 01:06:56,079

those kind of things are priceless

1906

01:07:01,109 --> 01:06:58,160

learning how to do that as a nation is

1907

01:07:03,510 --> 01:07:01,119

is incredibly important and now we're

1908

01:07:05,270 --> 01:07:03,520

going to take this team that has has

1909

01:07:07,349 --> 01:07:05,280

performed so well

1910

01:07:09,190 --> 01:07:07,359

and we're going to move into the next

1911

01:07:11,430 --> 01:07:09,200

sphere of operations and i think we'll

1912

01:07:14,309 --> 01:07:11,440

be just as successful

1913

01:07:15,750 --> 01:07:14,319

in in those activities

1914

01:07:17,510 --> 01:07:15,760

okay we're back here for the time we

1915

01:07:18,950 --> 01:07:17,520

have available we'll run the rest of the

1916

01:07:20,630 --> 01:07:18,960

questions across the front we'll start

1917

01:07:23,109 --> 01:07:20,640

with mark

1918

01:07:25,190 --> 01:07:23,119

mark kirkman interspace news um i don't

1919

01:07:27,029 --> 01:07:25,200

normally ask the non-technical feeling

1920

01:07:28,549 --> 01:07:27,039

questions but i got a couple of them uh

1921

01:07:30,069 --> 01:07:28,559

first for john

1922

01:07:32,150 --> 01:07:30,079

if i remember correctly there's only

1923

01:07:33,430 --> 01:07:32,160

been seven or eight program managers and

1924

01:07:34,150 --> 01:07:33,440

i was just wondering if you can reflect

1925

01:07:36,470 --> 01:07:34,160

on

1926

01:07:38,630 --> 01:07:36,480

being the caretaker here at the end of

1927

01:07:39,990 --> 01:07:38,640

the shuttle program and maybe how that

1928

01:07:42,309 --> 01:07:40,000

squares with your thoughts when you

1929

01:07:44,630 --> 01:07:42,319

first walked in the door as a new hire

1930

01:07:47,029 --> 01:07:44,640

and then my second question is i mean

1931

01:07:48,870 --> 01:07:47,039

tomorrow i guess is the last ascent sim

1932

01:07:51,190 --> 01:07:48,880

for the crew and then the shuttle

1933

01:07:53,750 --> 01:07:51,200

simulator essentially becomes a museum

1934

01:07:55,589 --> 01:07:53,760

piece or a toy and after wheel stop the

1935

01:07:56,870 --> 01:07:55,599

the flicker becomes

1936

01:07:58,630 --> 01:07:56,880

i don't know what you're planning to do

1937

01:08:00,230 --> 01:07:58,640

with the fake car just if both of you

1938

01:08:02,309 --> 01:08:00,240

can reflect on kind of the mood around

1939

01:08:04,069 --> 01:08:02,319

here i'm not here all the time

1940

01:08:06,789 --> 01:08:04,079

but i certainly remember how things used

1941

01:08:08,950 --> 01:08:06,799

to be and the parking lot looks emptier

1942

01:08:11,190 --> 01:08:08,960

the the cafeteria is emptier i was just

1943

01:08:12,710 --> 01:08:11,200

wondering is that your observation and

1944

01:08:15,670 --> 01:08:12,720

how what your thoughts might be on those

1945

01:08:17,910 --> 01:08:15,680

for from both you on that one thank you

1946

01:08:19,269 --> 01:08:17,920

yeah um okay

1947

01:08:22,709 --> 01:08:19,279

i think they're i'm going to take three

1948

01:08:24,390 --> 01:08:22,719

questions out and the the first was um

1949

01:08:26,390 --> 01:08:24,400

number programming i think we've had 11

1950

01:08:29,510 --> 01:08:26,400

program managers i haven't counted but i

1951

01:08:32,870 --> 01:08:29,520

i get advice from from them occasionally

1952

01:08:36,550 --> 01:08:32,880

i i have not had much time

1953

01:08:38,630 --> 01:08:36,560

to just sit back and reflect on it

1954

01:08:41,590 --> 01:08:38,640

i do feel pressure

1955

01:08:43,910 --> 01:08:41,600

that uh we have to preserve the legacy

1956

01:08:46,229 --> 01:08:43,920

that those guys have have

1957

01:08:49,110 --> 01:08:46,239

have built for us

1958

01:08:51,269 --> 01:08:49,120

it's been an amazing run over 30 years

1959

01:08:53,430 --> 01:08:51,279

and i just i want to end the program

1960

01:08:55,749 --> 01:08:53,440

right you know and i think that's the

1961

01:08:58,870 --> 01:08:55,759

whole shuttle leadership team

1962

01:09:01,749 --> 01:08:58,880

um they really want to end it right

1963

01:09:05,110 --> 01:09:03,269

incredibly unfortunate to have ended the

1964

01:09:06,390 --> 01:09:05,120

program after columbia and have all the

1965

01:09:08,309 --> 01:09:06,400

things that the shuttle program had done

1966

01:09:10,470 --> 01:09:08,319

just be remembered by that i think

1967

01:09:12,070 --> 01:09:10,480

picking ourselves back up completing

1968

01:09:14,390 --> 01:09:12,080

station getting it

1969

01:09:16,470 --> 01:09:14,400

squared away getting hst squared away

1970

01:09:18,070 --> 01:09:16,480

we're on a great run here

1971

01:09:20,390 --> 01:09:18,080

and we need to just finish up really

1972

01:09:22,070 --> 01:09:20,400

strong and uh and that's

1973

01:09:24,630 --> 01:09:22,080

that's really my focus and the team's

1974

01:09:26,470 --> 01:09:24,640

focus is is you feel that you you you

1975

01:09:28,870 --> 01:09:26,480

know it's i don't know if you're ever on

1976

01:09:31,030 --> 01:09:28,880

a sports team or band or

1977

01:09:34,070 --> 01:09:31,040

or uh you know drama or whatever you

1978

01:09:36,229 --> 01:09:34,080

know and and if you come into uh

1979

01:09:38,149 --> 01:09:36,239

something with a legacy of extreme

1980

01:09:39,430 --> 01:09:38,159

success you feel pressured to keep that

1981

01:09:41,189 --> 01:09:39,440

string going you know and keep that

1982

01:09:42,709 --> 01:09:41,199

success going and and i think the team

1983

01:09:44,550 --> 01:09:42,719

feels that that's a very good motivator

1984

01:09:46,070 --> 01:09:44,560

though that's that's a good thing

1985

01:09:48,950 --> 01:09:46,080

um

1986

01:09:51,189 --> 01:09:48,960

it talked about uh the shuttle mission

1987

01:09:52,390 --> 01:09:51,199

simulator the motion base tomorrow's the

1988

01:09:55,350 --> 01:09:52,400

the last

1989

01:09:57,830 --> 01:09:55,360

uh set of ascents we hope um

1990

01:09:59,590 --> 01:09:57,840

uh and then we'll uh we'll shut it down

1991

01:10:01,189 --> 01:09:59,600

it's going to an unbelievably fine

1992

01:10:03,669 --> 01:10:01,199

institution

1993

01:10:05,270 --> 01:10:03,679

and uh and it will uh it will have a

1994

01:10:08,390 --> 01:10:05,280

great home there and we actually brought

1995

01:10:10,550 --> 01:10:08,400

some grad students from texas a m in and

1996

01:10:12,310 --> 01:10:10,560

let them fly it uh so that they could

1997

01:10:13,910 --> 01:10:12,320

see what what they were getting and

1998

01:10:16,470 --> 01:10:13,920

hopefully they'll be able to uh to put

1999

01:10:19,030 --> 01:10:16,480

it back together and and be able to

2000

01:10:20,550 --> 01:10:19,040

to use it as a teaching tool

2001

01:10:21,910 --> 01:10:20,560

um so

2002

01:10:24,470 --> 01:10:21,920

you know there's a lot of that going on

2003

01:10:26,470 --> 01:10:24,480

we're gonna we'll take the uh the full

2004

01:10:28,229 --> 01:10:26,480

fuselage trainer out of building nine

2005

01:10:29,590 --> 01:10:28,239

the crew compartment trainer the

2006

01:10:31,669 --> 01:10:29,600

simulators thing so things will be

2007

01:10:33,350 --> 01:10:31,679

emptying out

2008

01:10:35,430 --> 01:10:33,360

it's a little bit of a shock you know

2009

01:10:37,430 --> 01:10:35,440

because we've my whole career all that

2010

01:10:38,630 --> 01:10:37,440

has been here

2011

01:10:40,470 --> 01:10:38,640

but i think again you get the

2012

01:10:42,070 --> 01:10:40,480

determination and the motivation let's

2013

01:10:43,669 --> 01:10:42,080

fill it up with something else let's

2014

01:10:45,270 --> 01:10:43,679

fill it up with what the next program is

2015

01:10:47,189 --> 01:10:45,280

going to require

2016

01:10:49,750 --> 01:10:47,199

and uh and that that needs to be our

2017

01:10:52,310 --> 01:10:49,760

focus is not i it would be

2018

01:10:54,709 --> 01:10:52,320

i would be very upset if the

2019

01:10:56,149 --> 01:10:54,719

if the shuttle team uh went off and

2020

01:10:57,750 --> 01:10:56,159

their next activity was to plan our

2021

01:10:59,910 --> 01:10:57,760

one-year reunion you know we're playing

2022

01:11:01,750 --> 01:10:59,920

our five-year reunion or just you know

2023

01:11:03,430 --> 01:11:01,760

that is not what this these guys are all

2024

01:11:04,870 --> 01:11:03,440

about these guys are all about let's

2025

01:11:07,030 --> 01:11:04,880

let's quit talking about last and let's

2026

01:11:09,510 --> 01:11:07,040

talk about firsts or next you know and

2027

01:11:11,750 --> 01:11:09,520

that's that's the important piece of it

2028

01:11:13,590 --> 01:11:11,760

um jsc itself you talked about the the

2029

01:11:16,229 --> 01:11:13,600

cars um

2030

01:11:18,790 --> 01:11:16,239

jsc will get smaller uh already we're

2031

01:11:20,790 --> 01:11:18,800

we're a smaller center than we were two

2032

01:11:23,189 --> 01:11:20,800

major programs are going away

2033

01:11:25,350 --> 01:11:23,199

um but that's okay because i think as as

2034

01:11:26,709 --> 01:11:25,360

we get smaller we're able to focus a

2035

01:11:27,590 --> 01:11:26,719

little bit more to

2036

01:11:30,709 --> 01:11:27,600

and

2037

01:11:32,950 --> 01:11:30,719

are going to be required to enable that

2038

01:11:34,790 --> 01:11:32,960

next round of exploration so you know

2039

01:11:38,229 --> 01:11:34,800

it's it's you're going to have

2040

01:11:40,790 --> 01:11:38,239

cyclical employment based on the mission

2041

01:11:42,550 --> 01:11:40,800

we don't keep jobs here just to have

2042

01:11:43,750 --> 01:11:42,560

a certain number of jobs we keep jobs

2043

01:11:45,910 --> 01:11:43,760

here so that people can actually do

2044

01:11:48,550 --> 01:11:45,920

something and actually accomplish a

2045

01:11:50,550 --> 01:11:48,560

mission and as the mission focus becomes

2046

01:11:53,030 --> 01:11:50,560

more clear than the jobs that are

2047

01:11:56,550 --> 01:11:53,040

required to fulfill that mission focus

2048

01:11:59,750 --> 01:11:56,560

um uh will will appear and then then

2049

01:12:01,910 --> 01:11:59,760

we'll be we'll be rolling again

2050

01:12:02,790 --> 01:12:01,920

oh no he said it all

2051

01:12:04,950 --> 01:12:02,800

except

2052

01:12:06,550 --> 01:12:04,960

i didn't i car's here all the time i

2053

01:12:12,149 --> 01:12:06,560

thought the simulator was going to a m

2054

01:12:16,390 --> 01:12:14,390

phillips loss with nasaspaceflight.com

2055

01:12:18,550 --> 01:12:16,400

uh one for each of you uh first or mr

2056

01:12:20,390 --> 01:12:18,560

sufferdini um i understand the plan is

2057

01:12:22,790 --> 01:12:20,400

for the station altitude to be raised

2058

01:12:25,350 --> 01:12:22,800

again up to about 410 kilometers later

2059

01:12:26,950 --> 01:12:25,360

this year um is that the uh is that the

2060

01:12:30,470 --> 01:12:26,960

altitude that the station's going to be

2061

01:12:32,070 --> 01:12:30,480

maintained at for the for the near term

2062

01:12:33,669 --> 01:12:32,080

yeah for the next little while that's

2063

01:12:35,830 --> 01:12:33,679

where it'll be we're we're on the

2064

01:12:37,590 --> 01:12:35,840

upswing of the solar cycle which

2065

01:12:39,030 --> 01:12:37,600

increases drag and so we have to raise

2066

01:12:41,270 --> 01:12:39,040

the altitude

2067

01:12:42,790 --> 01:12:41,280

to protect for the prop but it's an

2068

01:12:44,070 --> 01:12:42,800

interesting problem that we're working

2069

01:12:46,950 --> 01:12:44,080

over the next

2070

01:12:49,110 --> 01:12:46,960

10 years through 2020 we're trying to

2071

01:12:50,630 --> 01:12:49,120

we have a certain amount of prop that

2072

01:12:53,510 --> 01:12:50,640

that both ourselves and our russian

2073

01:12:54,870 --> 01:12:53,520

colleagues are obligated to fly

2074

01:12:56,709 --> 01:12:54,880

and we want to make sure the tanks are

2075

01:12:59,189 --> 01:12:56,719

full at the end of 2020 in case we

2076

01:13:01,350 --> 01:12:59,199

extend the life of iss

2077

01:13:04,630 --> 01:13:01,360

we would like to fly lower because the

2078

01:13:06,229 --> 01:13:04,640

mmod environment's a little less

2079

01:13:08,070 --> 01:13:06,239

at the lower altitudes all of our

2080

01:13:10,470 --> 01:13:08,080

analysis always assumed we'd be at the

2081

01:13:11,590 --> 01:13:10,480

higher altitudes so we'll be at 410 for

2082

01:13:13,430 --> 01:13:11,600

a while

2083

01:13:16,630 --> 01:13:13,440

and then we'll come down and probably

2084

01:13:19,910 --> 01:13:16,640

manage ourselves around 400 kilometers

2085

01:13:23,990 --> 01:13:21,350

did you have a follow-up phil let's

2086

01:13:25,590 --> 01:13:24,000

let's get a follow-up from phillip uh

2087

01:13:27,350 --> 01:13:25,600

back here

2088

01:13:29,910 --> 01:13:27,360

and then

2089

01:13:32,630 --> 01:13:29,920

for mr shannon um

2090

01:13:34,630 --> 01:13:32,640

just a clarification is the the usa

2091

01:13:37,430 --> 01:13:34,640

commercial shuttle proposal completely

2092

01:13:39,110 --> 01:13:37,440

off the table at this point

2093

01:13:41,110 --> 01:13:39,120

um you know

2094

01:13:44,390 --> 01:13:41,120

i have not been

2095

01:13:47,669 --> 01:13:44,400

very heavily involved in that whole

2096

01:13:49,510 --> 01:13:47,679

proposal or discussion i'm aware of it

2097

01:13:51,110 --> 01:13:49,520

um

2098

01:13:53,990 --> 01:13:51,120

so the answer to the question is i don't

2099

01:13:55,510 --> 01:13:54,000

know um i

2100

01:13:57,189 --> 01:13:55,520

don't know the status of it what i do

2101
01:13:59,189 --> 01:13:57,199
know is that

2102
01:14:01,189 --> 01:13:59,199
we're not going to release

2103
01:14:02,870 --> 01:14:01,199
endeavor

2104
01:14:04,390 --> 01:14:02,880
for

2105
01:14:06,630 --> 01:14:04,400
unrecoverable

2106
01:14:08,229 --> 01:14:06,640
actions

2107
01:14:10,470 --> 01:14:08,239
in its

2108
01:14:12,310 --> 01:14:10,480
retirement processing

2109
01:14:14,470 --> 01:14:12,320
until we get the get a letter from

2110
01:14:15,910 --> 01:14:14,480
headquarters to do so we've done a lot

2111
01:14:19,590 --> 01:14:15,920
of work just all the down mission

2112
01:14:21,350 --> 01:14:19,600
processing we've removed the forward rcs

2113
01:14:23,910 --> 01:14:21,360

i think we're about to remove the open

2114

01:14:25,750 --> 01:14:23,920

Pods if we haven't done that already

2115

01:14:27,430 --> 01:14:25,760

but we're not doing taking any action

2116

01:14:28,390 --> 01:14:27,440

that's unrecoverable until headquarters

2117

01:14:29,990 --> 01:14:28,400

tells us

2118

01:14:31,510 --> 01:14:30,000

to do that that's a little different

2119

01:14:33,350 --> 01:14:31,520

than discovery with discovery we just

2120

01:14:34,950 --> 01:14:33,360

rolled right into it

2121

01:14:37,350 --> 01:14:34,960

and that

2122

01:14:39,189 --> 01:14:37,360

is because headquarters i think is

2123

01:14:41,430 --> 01:14:39,199

letting all of the

2124

01:14:42,950 --> 01:14:41,440

the commercial shuttle discussions

2125

01:14:44,630 --> 01:14:42,960

complete before we would take those

2126

01:14:45,750 --> 01:14:44,640

actions

2127

01:14:47,270 --> 01:14:45,760

we're not really ready to do

2128

01:14:48,630 --> 01:14:47,280

unrecoverable actions yet anyway so it's

2129

01:14:50,550 --> 01:14:48,640

not going to cost us any additional

2130

01:14:52,550 --> 01:14:50,560

money when we're ready to do that then

2131

01:14:54,070 --> 01:14:52,560

we'll have the the real

2132

01:14:55,270 --> 01:14:54,080

in-depth discussions with headquarters

2133

01:14:57,189 --> 01:14:55,280

to make sure hey we're going to go do

2134

01:15:00,149 --> 01:14:57,199

this and and get there okay and then

2135

01:15:04,630 --> 01:15:03,189

jim yeah jim oberger nbc for questions

2136

01:15:07,350 --> 01:15:04,640

for each of you but for john first of

2137

01:15:09,030 --> 01:15:07,360

all as atlantis gets ready to depart the

2138

01:15:11,270 --> 01:15:09,040

station how thoroughly will it be

2139

01:15:13,110 --> 01:15:11,280

cannibalized for anything that can be

2140

01:15:15,189 --> 01:15:13,120

taken on board the station

2141

01:15:17,430 --> 01:15:15,199

and does that include possibly things on

2142

01:15:19,350 --> 01:15:17,440

on it such as the spacesuits that may

2143

01:15:21,030 --> 01:15:19,360

they they have to go home with them but

2144

01:15:23,110 --> 01:15:21,040

with spacesuit components perhaps we

2145

01:15:24,790 --> 01:15:23,120

sent back up on on supply flights later

2146

01:15:25,590 --> 01:15:24,800

but how thoroughly will all those parts

2147

01:15:28,310 --> 01:15:25,600

be

2148

01:15:31,270 --> 01:15:28,320

cannibalized for to extend iss

2149

01:15:32,950 --> 01:15:31,280

um that's the nice part jim is that

2150

01:15:34,470 --> 01:15:32,960

we've had time to kind of think through

2151

01:15:36,470 --> 01:15:34,480

logistics on all the different

2152

01:15:39,270 --> 01:15:36,480

subsystems on on

2153

01:15:41,669 --> 01:15:39,280

on spacesuits and computers and cameras

2154

01:15:43,590 --> 01:15:41,679

and all the all the other stuff you know

2155

01:15:46,790 --> 01:15:43,600

and we've been able to put that into the

2156

01:15:48,950 --> 01:15:46,800

the logistics uh train here to to get it

2157

01:15:52,070 --> 01:15:48,960

on board so that we don't have to

2158

01:15:54,550 --> 01:15:52,080

have to do that um we put the the boom

2159

01:15:56,310 --> 01:15:54,560

on uh last flight you know that was and

2160

01:15:58,870 --> 01:15:56,320

and we're able to fly back home without

2161

01:15:59,910 --> 01:15:58,880

it we found out a way to do inspection

2162

01:16:01,110 --> 01:15:59,920

um

2163

01:16:02,470 --> 01:16:01,120

you know it always seems like every

2164

01:16:04,550 --> 01:16:02,480

flight there's a few things that maybe

2165

01:16:08,790 --> 01:16:04,560

we we toss across the hatch

2166

01:16:10,229 --> 01:16:08,800

that uh that the iss crew asks for but

2167

01:16:12,229 --> 01:16:10,239

remember we still have a mission to fly

2168

01:16:14,229 --> 01:16:12,239

after we undock we've got to go free

2169

01:16:16,149 --> 01:16:14,239

flight for a couple days do all of our

2170

01:16:17,590 --> 01:16:16,159

checkouts of systems or do our last

2171

01:16:19,350 --> 01:16:17,600

inspection

2172

01:16:21,669 --> 01:16:19,360

and we have to retain the capability of

2173

01:16:24,310 --> 01:16:21,679

doing a spacewalk if required to close

2174

01:16:26,470 --> 01:16:24,320

doors or bring in a ku antenna or if we

2175

01:16:28,709 --> 01:16:26,480

found some mmod damage to take care of

2176
01:16:31,350 --> 01:16:28,719
that so you know we have to keep the the

2177
01:16:32,870 --> 01:16:31,360
shuttle in a in a pretty robust

2178
01:16:34,550 --> 01:16:32,880
condition

2179
01:16:35,910 --> 01:16:34,560
as we leave iss

2180
01:16:37,110 --> 01:16:35,920
um i don't think there's a lot of things

2181
01:16:38,550 --> 01:16:37,120
they're gonna be asked for at the last

2182
01:16:42,870 --> 01:16:38,560
minute because we've had a couple years

2183
01:16:46,070 --> 01:16:44,550
you didn't need them to come home with

2184
01:16:47,830 --> 01:16:46,080
but there's pieces in the emu you might

2185
01:16:50,070 --> 01:16:47,840
want to put back up on the station we

2186
01:16:52,229 --> 01:16:50,080
have four on orbit okay

2187
01:16:54,870 --> 01:16:52,239
so we would they need theirs for their

2188
01:16:57,189 --> 01:16:54,880

payload bay door closure anomalies so uh

2189

01:16:58,550 --> 01:16:57,199

we we yeah we have plenty like john said

2190

01:16:59,990 --> 01:16:58,560

we have plenty of logistics on board

2191

01:17:02,390 --> 01:17:00,000

might be one or two things we asked for

2192

01:17:04,470 --> 01:17:02,400

but they'll be minor things

2193

01:17:06,310 --> 01:17:04,480

sometimes

2194

01:17:08,229 --> 01:17:06,320

once they're done this is just a joke i

2195

01:17:09,750 --> 01:17:08,239

have a more uh more touchy question for

2196

01:17:11,590 --> 01:17:09,760

you okay

2197

01:17:12,870 --> 01:17:11,600

we've been seeing a transition it's once

2198

01:17:13,990 --> 01:17:12,880

the shuttle has no longer been involved

2199

01:17:15,990 --> 01:17:14,000

in crew

2200

01:17:18,550 --> 01:17:16,000

swap on iss the transition of this of

2201

01:17:21,270 --> 01:17:18,560

the iss crew composition used to be

2202

01:17:23,270 --> 01:17:21,280

about 50 50 u.s and russian and it's now

2203

01:17:24,709 --> 01:17:23,280

settling into a three to two ratio three

2204

01:17:26,550 --> 01:17:24,719

russians and two americans it's been

2205

01:17:28,550 --> 01:17:26,560

that way since earlier last year it's

2206

01:17:30,630 --> 01:17:28,560

going to be that way for years to come

2207

01:17:32,870 --> 01:17:30,640

is that how did that change in

2208

01:17:35,030 --> 01:17:32,880

composition come about in the ratio and

2209

01:17:36,149 --> 01:17:35,040

was it was it because of the

2210

01:17:37,830 --> 01:17:36,159

shuttles

2211

01:17:42,310 --> 01:17:37,840

the end of the shuttle crew

2212

01:17:45,430 --> 01:17:44,310

i hadn't even thought about this uh jim

2213

01:17:49,270 --> 01:17:45,440

2214
01:17:50,630 --> 01:17:49,280
when we talk about the us os that is the

2215
01:17:55,430 --> 01:17:50,640
that's the

2216
01:17:56,550 --> 01:17:55,440
partnership of esa jaxa csa and nasa

2217
01:17:58,390 --> 01:17:56,560
and

2218
01:18:00,709 --> 01:17:58,400
when we went down from four to three

2219
01:18:02,310 --> 01:18:00,719
crew it was understood that the russians

2220
01:18:04,630 --> 01:18:02,320
get three of those crew and the usos

2221
01:18:06,790 --> 01:18:04,640
gets three of those crew so by the

2222
01:18:08,630 --> 01:18:06,800
nature of the percentages that we owe

2223
01:18:10,870 --> 01:18:08,640
the partners to fly which you said is

2224
01:18:14,390 --> 01:18:10,880
exactly right we we generally have two

2225
01:18:15,750 --> 01:18:14,400
u.s one of the partners and and three

2226

01:18:17,270 --> 01:18:15,760

russians

2227

01:18:19,430 --> 01:18:17,280

although

2228

01:18:21,750 --> 01:18:19,440

a few increments ago we had four us os

2229

01:18:24,070 --> 01:18:21,760

crews and two russians so

2230

01:18:25,590 --> 01:18:24,080

but that's that's always been in in the

2231

01:18:27,430 --> 01:18:25,600

plan was

2232

01:18:29,669 --> 01:18:27,440

that was it was gonna be three russians

2233

01:18:32,149 --> 01:18:29,679

and uh three or four us os we're

2234

01:18:33,669 --> 01:18:32,159

prepared to go back to four of the

2235

01:18:34,950 --> 01:18:33,679

commercial vehicles in fact that's the

2236

01:18:36,870 --> 01:18:34,960

requirement we gave to the commercial

2237

01:18:38,709 --> 01:18:36,880

vehicles to be able to carry four crew

2238

01:18:41,669 --> 01:18:38,719

our systems are sized to have four crew

2239

01:18:43,830 --> 01:18:41,679

on the us os and at that point then

2240

01:18:45,590 --> 01:18:43,840

the u.s

2241

01:18:46,709 --> 01:18:45,600

crew opportunities will go up a little

2242

01:18:48,870 --> 01:18:46,719

bit

2243

01:18:51,750 --> 01:18:48,880

if and when that occurs but we're we've

2244

01:18:55,030 --> 01:18:51,760

always been been there

2245

01:18:57,030 --> 01:18:55,040

okay last question uh alan boyle from

2246

01:18:58,630 --> 01:18:57,040

msnbc just a couple of questions on

2247

01:19:01,270 --> 01:18:58,640

commercial operations

2248

01:19:03,030 --> 01:19:01,280

first for for john

2249

01:19:05,669 --> 01:19:03,040

are there any thoughts about how many

2250

01:19:07,270 --> 01:19:05,679

shuttle program workers either probably

2251

01:19:09,270 --> 01:19:07,280

civil servants

2252

01:19:11,830 --> 01:19:09,280

might go over to support commercial

2253

01:19:13,830 --> 01:19:11,840

operations somehow or other or

2254

01:19:16,070 --> 01:19:13,840

have you had any thoughts about

2255

01:19:18,870 --> 01:19:16,080

whether those people would go on to the

2256

01:19:20,630 --> 01:19:18,880

exploration program and then for mike it

2257

01:19:23,110 --> 01:19:20,640

sounds as if it's pretty sure that the

2258

01:19:26,709 --> 01:19:23,120

spacex demo flight will go all the way

2259

01:19:29,270 --> 01:19:26,719

to the space station uh perhaps probably

2260

01:19:31,430 --> 01:19:29,280

later this year uh maybe if you could

2261

01:19:32,790 --> 01:19:31,440

just characterize a little bit more what

2262

01:19:34,870 --> 01:19:32,800

the decision

2263

01:19:36,870 --> 01:19:34,880

timeline is it sounds like

2264

01:19:39,110 --> 01:19:36,880

the decision is pretty firm but if there

2265

01:19:40,950 --> 01:19:39,120

are other places that need to be put in

2266

01:19:43,110 --> 01:19:40,960

place maybe you could talk about that a

2267

01:19:46,149 --> 01:19:43,120

little bit

2268

01:19:50,630 --> 01:19:47,830

where are the

2269

01:19:51,350 --> 01:19:50,640

where is the workforce going on the on

2270

01:19:53,030 --> 01:19:51,360

the

2271

01:19:55,510 --> 01:19:53,040

contractor side i don't have as much

2272

01:19:56,950 --> 01:19:55,520

insight into that

2273

01:19:58,550 --> 01:19:56,960

you know because there's no reportables

2274

01:20:01,430 --> 01:19:58,560

to me on that but

2275

01:20:03,110 --> 01:20:01,440

um i will tell you that that

2276

01:20:05,110 --> 01:20:03,120

i talk to

2277

01:20:07,430 --> 01:20:05,120

companies you know the the bechtels and

2278

01:20:09,669 --> 01:20:07,440

the bps and the in the in the the

2279

01:20:11,510 --> 01:20:09,679

boeings and and uh

2280

01:20:13,350 --> 01:20:11,520

and uh chevrons and all the the

2281

01:20:15,669 --> 01:20:13,360

different ti's kind of companies so

2282

01:20:16,629 --> 01:20:15,679

across this incredible spectrum of

2283

01:20:18,390 --> 01:20:16,639

different

2284

01:20:20,310 --> 01:20:18,400

uh industries

2285

01:20:22,870 --> 01:20:20,320

they are all coming to the job fairs and

2286

01:20:25,030 --> 01:20:22,880

and they are all very uh interested in

2287

01:20:27,750 --> 01:20:25,040

the in the shuttle workforce because

2288

01:20:29,510 --> 01:20:27,760

this is a team that is uh they're good

2289

01:20:31,910 --> 01:20:29,520

at solving problems they are good at

2290

01:20:32,950 --> 01:20:31,920

working details and they've grown up in

2291

01:20:45,430 --> 01:20:32,960

a

2292

01:20:47,750 --> 01:20:45,440

workforce

2293

01:20:49,830 --> 01:20:47,760

they don't face the the layoffs the same

2294

01:20:52,070 --> 01:20:49,840

as those the contractors so they're

2295

01:20:54,310 --> 01:20:52,080

uh they're moved out into other areas

2296

01:20:56,629 --> 01:20:54,320

some are going into commercial crew and

2297

01:20:58,390 --> 01:20:56,639

cargo activities some are going over to

2298

01:21:00,070 --> 01:20:58,400

help mike some of them are going into

2299

01:21:02,149 --> 01:21:00,080

the new exploration program some of them

2300

01:21:04,629 --> 01:21:02,159

are going into into just engineering

2301
01:21:07,590 --> 01:21:04,639
programs

2302
01:21:09,270 --> 01:21:07,600
a number of folks have have left after

2303
01:21:11,430 --> 01:21:09,280
after their their shuttle activities

2304
01:21:14,470 --> 01:21:11,440
were done and they've gone into

2305
01:21:16,390 --> 01:21:14,480
petrochem in aviation and and in

2306
01:21:18,470 --> 01:21:16,400
medicine and and

2307
01:21:20,470 --> 01:21:18,480
and electronics uh

2308
01:21:22,629 --> 01:21:20,480
i.t kind of fields you know so i hear

2309
01:21:24,229 --> 01:21:22,639
back from all of them uh and

2310
01:21:26,629 --> 01:21:24,239
that's actually kind of kind of

2311
01:21:28,870 --> 01:21:26,639
interesting is as one person will go off

2312
01:21:30,870 --> 01:21:28,880
to another industry they come back and

2313
01:21:32,790 --> 01:21:30,880

grab like six of their best friends or

2314

01:21:34,709 --> 01:21:32,800

people they knew could really do the job

2315

01:21:36,310 --> 01:21:34,719

and then they bring them back in and so

2316

01:21:38,950 --> 01:21:36,320

the the shuttle workforce being

2317

01:21:40,629 --> 01:21:38,960

dispersed um it it's kind of the rising

2318

01:21:41,830 --> 01:21:40,639

tide floats all boats right there's a

2319

01:21:43,189 --> 01:21:41,840

lot of industries that are going to

2320

01:21:45,750 --> 01:21:43,199

benefit from

2321

01:21:48,629 --> 01:21:45,760

uh the the unbelievable workforce that

2322

01:21:50,149 --> 01:21:48,639

is uh is available to them and i'm i'll

2323

01:21:52,870 --> 01:21:50,159

just be kind of honest here you know

2324

01:21:54,390 --> 01:21:52,880

nasa when we're recruiting we kind of

2325

01:21:56,870 --> 01:21:54,400

get pick of the litter a lot of the

2326

01:21:58,550 --> 01:21:56,880

times in in colleges we get the best

2327

01:22:00,470 --> 01:21:58,560

kids you know and they're they come in

2328

01:22:02,629 --> 01:22:00,480

and they co-op or they they do summer

2329

01:22:04,950 --> 01:22:02,639

interns and they are unbelievable they

2330

01:22:06,709 --> 01:22:04,960

are so good uh you keep them here and

2331

01:22:08,709 --> 01:22:06,719

you grow them up in this in the culture

2332

01:22:10,790 --> 01:22:08,719

like i talked about even folks that

2333

01:22:12,870 --> 01:22:10,800

don't come to work immediately for nasa

2334

01:22:15,350 --> 01:22:12,880

they may go work for a contractor and

2335

01:22:17,189 --> 01:22:15,360

the ones that really are outstanding you

2336

01:22:19,510 --> 01:22:17,199

know a lot of times we'll hire them into

2337

01:22:23,750 --> 01:22:19,520

nasa so the quality of the people that

2338

01:22:26,470 --> 01:22:23,760

we have is uh is tremendous and as we as

2339

01:22:29,189 --> 01:22:26,480

we disperse them what what i see is that

2340

01:22:30,950 --> 01:22:29,199

we're gonna raise the uh the capability

2341

01:22:32,229 --> 01:22:30,960

and uh and uh

2342

01:22:34,070 --> 01:22:32,239

and uh

2343

01:22:35,430 --> 01:22:34,080

and how good those those different

2344

01:22:40,950 --> 01:22:35,440

industries are

2345

01:22:45,189 --> 01:22:43,590

some time ago we agreed with spacex that

2346

01:22:46,709 --> 01:22:45,199

they could uh

2347

01:22:49,430 --> 01:22:46,719

modify

2348

01:22:52,390 --> 01:22:49,440

well assume that the take the time to

2349

01:22:54,870 --> 01:22:52,400

build the dragon for d2

2350

01:22:56,550 --> 01:22:54,880

would be the same dragon as d3 so that

2351
01:22:57,750 --> 01:22:56,560
was that would be a schedule hit to him

2352
01:22:59,350 --> 01:22:57,760
to try to do that

2353
01:23:01,270 --> 01:22:59,360
but we agreed to that so they could be

2354
01:23:03,430 --> 01:23:01,280
on course for the combination of those

2355
01:23:05,590 --> 01:23:03,440
flights like i said this afternoon we

2356
01:23:08,229 --> 01:23:05,600
intend to have the meeting where we'll

2357
01:23:11,189 --> 01:23:08,239
we'll discuss in detail our

2358
01:23:12,470 --> 01:23:11,199
our perception of of what we may or may

2359
01:23:16,070 --> 01:23:12,480
not get

2360
01:23:17,430 --> 01:23:16,080
um if they uh try to if they could

2361
01:23:19,350 --> 01:23:17,440
try to combine flights and whether or

2362
01:23:21,830 --> 01:23:19,360
not we could be comfortable with that

2363
01:23:23,270 --> 01:23:21,840

but that decision has not been made

2364

01:23:34,070 --> 01:23:23,280

i

2365

01:23:35,990 --> 01:23:34,080

you'll hear the spacex guys talk about

2366

01:23:38,709 --> 01:23:36,000

they're just about done you hear that

2367

01:23:40,149 --> 01:23:38,719

from elon a lot and and it's one thing

2368

01:23:42,070 --> 01:23:40,159

to be done with hardware it's another

2369

01:23:43,750 --> 01:23:42,080

thing to be done with your software and

2370

01:23:45,350 --> 01:23:43,760

they've handed all the data to nasa so

2371

01:23:47,110 --> 01:23:45,360

we can do the verifications we have to

2372

01:23:49,110 --> 01:23:47,120

do

2373

01:23:52,470 --> 01:23:49,120

this is the the

2374

01:23:53,830 --> 01:23:52,480

this process this commercial process

2375

01:23:55,270 --> 01:23:53,840

means that

2376

01:23:57,669 --> 01:23:55,280

the whole launch vehicle the whole

2377

01:23:59,270 --> 01:23:57,679

launch process as long as they meet the

2378

01:24:00,149 --> 01:23:59,280

the faa rules

2379

01:24:02,709 --> 01:24:00,159

uh

2380

01:24:04,149 --> 01:24:02,719

they can go fly but from a safety

2381

01:24:06,149 --> 01:24:04,159

perspective

2382

01:24:07,830 --> 01:24:06,159

there's a sphere around iss that we

2383

01:24:09,750 --> 01:24:07,840

protect and once they come inside that

2384

01:24:12,229 --> 01:24:09,760

sphere they have to meet our

2385

01:24:15,189 --> 01:24:12,239

all of our verifications uh that that

2386

01:24:16,470 --> 01:24:15,199

are for safety safety functions um you

2387

01:24:18,070 --> 01:24:16,480

know to some degree you can give up

2388

01:24:19,189 --> 01:24:18,080

mission success and we've let them take

2389

01:24:21,350 --> 01:24:19,199

that risk

2390

01:24:22,870 --> 01:24:21,360

but we we don't allow them to take the

2391

01:24:25,189 --> 01:24:22,880

the risk of

2392

01:24:27,189 --> 01:24:25,199

a vehicle or crew safety so

2393

01:24:28,629 --> 01:24:27,199

uh inside that sphere we have to know

2394

01:24:30,310 --> 01:24:28,639

the systems operate there's a quite a

2395

01:24:31,510 --> 01:24:30,320

bit of day they have to pass to us and

2396

01:24:33,669 --> 01:24:31,520

there's quite a bit of work we do with

2397

01:24:35,910 --> 01:24:33,679

that data to finish our analysis to

2398

01:24:37,910 --> 01:24:35,920

complete the verifications and i really

2399

01:24:40,229 --> 01:24:37,920

think all that's going to take us to the

2400

01:24:42,229 --> 01:24:40,239

to the close to the end of this year to

2401

01:24:44,149 --> 01:24:42,239

get that all done

2402

01:24:45,590 --> 01:24:44,159

and so you know that's the challenge can

2403

01:24:47,030 --> 01:24:45,600

they get the data to us soon enough can

2404

01:24:50,709 --> 01:24:47,040

we get our work done we'll do it as

2405

01:24:52,870 --> 01:24:50,719

quick as we can and fly is uh as quick

2406

01:24:55,270 --> 01:24:52,880

as we can safely apply

2407

01:24:56,709 --> 01:24:55,280

um so the decision's coming pretty soon

2408

01:24:58,950 --> 01:24:56,719

but it hadn't been made yet relative to

2409

01:25:00,390 --> 01:24:58,960

combining planes

2410

01:25:02,629 --> 01:25:00,400

okay that's all the time we have for

2411

01:25:03,990 --> 01:25:02,639

this briefing but stay tuned shortly

2412

01:25:06,229 --> 01:25:04,000

you'll hear from the two flight

2413

01:25:07,750 --> 01:25:06,239

directors that will lead the mission of

2414

01:25:10,310 --> 01:25:07,760

atlantis to the international space

2415

01:25:12,790 --> 01:25:10,320

station quatsi alabarugo and chris

2416

01:25:14,550 --> 01:25:12,800

edelen will talk to you in detail about

2417

01:25:16,470 --> 01:25:14,560

the mission details

2418

01:25:18,229 --> 01:25:16,480

of atlantis voyage so stay tuned for

2419

01:25:19,910 --> 01:25:18,239

that thank you very much gentlemen and