



1
00:00:06,019 --> 00:00:04,309
good morning thank you for joining us

2
00:00:08,059 --> 00:00:06,029
here at NASA's Kennedy Space Center in

3
00:00:10,400 --> 00:00:08,069
Florida for the L minus two

4
00:00:13,220 --> 00:00:10,410
pre-launch news conference for spacial

5
00:00:15,169 --> 00:00:13,230
Atlantis's sts-135 mission to the

6
00:00:17,599 --> 00:00:15,179
International Space Station joining me

7
00:00:19,340 --> 00:00:17,609
today is Mike Moses mission management

8
00:00:21,250 --> 00:00:19,350
team chair and space shuttle launch

9
00:00:23,900 --> 00:00:21,260
integration manager morning

10
00:00:27,349 --> 00:00:23,910
mike leinbach/shuttle launch director

11
00:00:29,529 --> 00:00:27,359
good morning and Kathy winters shuttle

12
00:00:31,580 --> 00:00:29,539
weather officer good morning

13
00:00:34,190 --> 00:00:31,590

we'll hear from our panelists and then

14

00:00:36,500 --> 00:00:34,200

take questions mr. Moses thanks Kendra

15

00:00:38,060 --> 00:00:36,510

well we had a really smooth mission

16

00:00:40,340 --> 00:00:38,070

management team meeting today at the

17

00:00:41,720 --> 00:00:40,350

launch minus two day point standard

18

00:00:43,459 --> 00:00:41,730

thing went through the agenda talked all

19

00:00:46,819 --> 00:00:43,469

the the parties involved nobody has any

20

00:00:48,229 --> 00:00:46,829

issues that are in work a little tacky

21

00:00:51,229 --> 00:00:48,239

and thing going on at the slf that

22

00:00:52,400 --> 00:00:51,239

they've actually already resolved and I

23

00:00:54,410 --> 00:00:52,410

think I just got an email that there's

24

00:00:55,369 --> 00:00:54,420

an air-conditioner problem in Houston in

25

00:00:57,439 --> 00:00:55,379

one of the buildings that they're

26
00:00:58,580 --> 00:00:57,449
working on to so stuff down in the noise

27
00:00:59,869 --> 00:00:58,590
nothing to really worry about although

28
00:01:03,500 --> 00:00:59,879
air conditioning in Houston is actually

29
00:01:05,210 --> 00:01:03,510
a very big deal and so so really good

30
00:01:07,789 --> 00:01:05,220
shape the vehicle is in fantastic shape

31
00:01:09,170 --> 00:01:07,799
Mike's got the the launch team keyed up

32
00:01:11,300 --> 00:01:09,180
and ready to go they're doing perfect

33
00:01:13,340 --> 00:01:11,310
everything's on time on schedule looking

34
00:01:16,219 --> 00:01:13,350
looking amazing it's a great way to head

35
00:01:18,080 --> 00:01:16,229
into this into this countdown like I

36
00:01:20,359 --> 00:01:18,090
said nothing we talked about technical

37
00:01:21,560 --> 00:01:20,369
issues at all today we did discuss the

38
00:01:23,570 --> 00:01:21,570

weather I'll let Cathy talk about that

39

00:01:25,520 --> 00:01:23,580

with you but but it's a straightforward

40

00:01:27,910 --> 00:01:25,530

plan for us we're heading into Friday's

41

00:01:30,649 --> 00:01:27,920

launch attempt knowing that we have

42

00:01:32,240 --> 00:01:30,659

basically the 8th 9th and 10th there's

43

00:01:34,130 --> 00:01:32,250

opportunities and then we'd have to

44

00:01:37,460 --> 00:01:34,140

stand down to let a delta take the range

45

00:01:38,990 --> 00:01:37,470

for a GPS launch everybody's already

46

00:01:41,060 --> 00:01:39,000

asking do we have plans to make them

47

00:01:42,859 --> 00:01:41,070

move and all that and and the bottom

48

00:01:45,230 --> 00:01:42,869

line is nothing happens until we can't

49

00:01:46,880 --> 00:01:45,240

launch right so nobody's gonna agree to

50

00:01:48,170 --> 00:01:46,890

things that are planned until their

51
00:01:49,850 --> 00:01:48,180
problems and there's no problems yet

52
00:01:52,190 --> 00:01:49,860
there's just weather forecasts and

53
00:01:53,270 --> 00:01:52,200
weather forecasts or forecasts so we'll

54
00:01:54,319 --> 00:01:53,280
wait until we get there and see what we

55
00:01:56,179 --> 00:01:54,329
get

56
00:01:57,709 --> 00:01:56,189
and and so no there's nothing planned

57
00:01:59,060 --> 00:01:57,719
you know I had my phone ringing this

58
00:02:00,740 --> 00:01:59,070
morning the folks at the rental car

59
00:02:01,940 --> 00:02:00,750
places at the airport telling everybody

60
00:02:03,740 --> 00:02:01,950
we've already scrubbed because the

61
00:02:05,749 --> 00:02:03,750
weather forecast was bad and we don't do

62
00:02:06,920 --> 00:02:05,759
that until we get a little closer and we

63
00:02:08,630 --> 00:02:06,930

don't hope to do that at all this time

64

00:02:09,800 --> 00:02:08,640

around so so no plans to do anything

65

00:02:10,820 --> 00:02:09,810

we're going to just go through the

66

00:02:13,010 --> 00:02:10,830

account like we usually do we'll see

67

00:02:13,730 --> 00:02:13,020

what we get when we get into the tanking

68

00:02:16,040 --> 00:02:13,740

weather briefing which

69

00:02:18,170 --> 00:02:16,050

at 1:30 in the morning on Friday 1:30

70

00:02:19,730 --> 00:02:18,180

a.m. and before we go load the

71

00:02:20,960 --> 00:02:19,740

propellants into the tank we'll take a

72

00:02:23,060 --> 00:02:20,970

look at the weather and make sure it's

73

00:02:24,830 --> 00:02:23,070

really a good day to try that and so at

74

00:02:26,630 --> 00:02:24,840

that point we'll be making a decision so

75

00:02:27,770 --> 00:02:26,640

with that I really don't have anything

76

00:02:29,000 --> 00:02:27,780

else to say it's and we're in great

77

00:02:31,370 --> 00:02:29,010

shape really looking forward to getting

78

00:02:32,720 --> 00:02:31,380

this mission underway ok thanks Mike

79

00:02:34,940 --> 00:02:32,730

well the countdown so far is going

80

00:02:36,470 --> 00:02:34,950

extremely well we're into the loading of

81

00:02:38,600 --> 00:02:36,480

a fuel cell system right now and that's

82

00:02:40,730 --> 00:02:38,610

the liquid oxygen liquid hydrogen that

83

00:02:42,620 --> 00:02:40,740

powers those fuel cells that should be

84

00:02:44,000 --> 00:02:42,630

done around dinnertime this evening and

85

00:02:46,070 --> 00:02:44,010

we'll Deacon figure from that and get

86

00:02:49,040 --> 00:02:46,080

back into other launch pad preparations

87

00:02:50,720 --> 00:02:49,050

at that time rotating service structure

88

00:02:52,700 --> 00:02:50,730

retract tomorrow afternoon about 2

89

00:02:54,670 --> 00:02:52,710

o'clock maybe looking at some weather

90

00:02:57,320 --> 00:02:54,680

issues there Kathy we'll talk about that

91

00:02:58,900 --> 00:02:57,330

talk to commander Ferguson he's he and

92

00:03:02,120 --> 00:02:58,910

his crew are ready to go they got here

93

00:03:04,160 --> 00:03:02,130

on the fifth and and on the fourth you

94

00:03:07,070 --> 00:03:04,170

see on the fifth and are ready to go so

95

00:03:09,020 --> 00:03:07,080

that everything is looking good there so

96

00:03:10,910 --> 00:03:09,030

no issues at the launch pad we had a

97

00:03:12,170 --> 00:03:10,920

very clean meeting as Mike said not

98

00:03:13,880 --> 00:03:12,180

tracking anything at all that would

99

00:03:17,120 --> 00:03:13,890

prevent a long time liftoff Friday

100

00:03:18,230 --> 00:03:17,130

morning so we're feeling good and we

101
00:03:20,960 --> 00:03:18,240
turned over to Kathy for the weather

102
00:03:22,730 --> 00:03:20,970
forecast I wish I had better weather for

103
00:03:24,740 --> 00:03:22,740
the forecast but it is not looking

104
00:03:26,240 --> 00:03:24,750
favorable right now for lunch we have a

105
00:03:27,380 --> 00:03:26,250
tropical wave that's on the Caribbean

106
00:03:29,690 --> 00:03:27,390
and actually I'll show you a satellite

107
00:03:31,220 --> 00:03:29,700
picture it's actually in the Bahamas now

108
00:03:32,930 --> 00:03:31,230
yesterday we were looking at the same

109
00:03:35,420 --> 00:03:32,940
wave in the Caribbean and it's coming

110
00:03:37,280 --> 00:03:35,430
into the Bahamas and that wave is

111
00:03:38,570 --> 00:03:37,290
actually going to come into Florida you

112
00:03:39,950 --> 00:03:38,580
can see on the satellite picture along

113
00:03:41,090 --> 00:03:39,960

with a lot of tropical moisture that

114

00:03:43,790 --> 00:03:41,100

sound to the south that's all going to

115

00:03:45,530 --> 00:03:43,800

roll in to Florida the next couple of

116

00:03:47,300 --> 00:03:45,540

days particularly tomorrow for the wave

117

00:03:49,670 --> 00:03:47,310

but it's not really going to move right

118

00:03:51,140 --> 00:03:49,680

through it's gonna as it comes in an

119

00:03:53,900 --> 00:03:51,150

upper-level trough is going to come down

120

00:03:56,030 --> 00:03:53,910

and the the actual wave will kind of

121

00:03:58,700 --> 00:03:56,040

washout over Florida giving us a lot of

122

00:04:00,110 --> 00:03:58,710

moisture and a lot of cloud cover

123

00:04:02,180 --> 00:04:00,120

yesterday I kind of thought maybe we'd

124

00:04:03,410 --> 00:04:02,190

have some some decent conditions here

125

00:04:05,000 --> 00:04:03,420

along the coast when it came to seeing

126

00:04:06,740 --> 00:04:05,010

the vehicle if we were able to get green

127

00:04:08,570 --> 00:04:06,750

for launch but in reality it looks like

128

00:04:09,980 --> 00:04:08,580

tomorrow it's gonna be pretty cloudy and

129

00:04:11,390 --> 00:04:09,990

I actually backed off of the sea breeze

130

00:04:14,210 --> 00:04:11,400

I think our winds are now going to be

131

00:04:15,980 --> 00:04:14,220

from the south-southwest and we're gonna

132

00:04:17,150 --> 00:04:15,990

have some showers and even potentially

133

00:04:19,430 --> 00:04:17,160

some thunderstorms in the area by

134

00:04:20,990 --> 00:04:19,440

lunchtime so to get into our SS reach

135

00:04:22,840 --> 00:04:21,000

wreck tomorrow afternoon the you're

136

00:04:25,159 --> 00:04:22,850

gonna start seeing more scattered

137

00:04:26,700 --> 00:04:25,169

showers some isolated thunderstorms we

138

00:04:28,860 --> 00:04:26,710

may have to work around some of those

139

00:04:30,300 --> 00:04:28,870

comes to that operation and then as we

140

00:04:31,469 --> 00:04:30,310

get into the evening hours for tanking I

141

00:04:33,480 --> 00:04:31,479

think some of those thunderstorms are

142

00:04:35,610 --> 00:04:33,490

going to call back down and it'll be

143

00:04:38,610 --> 00:04:35,620

mostly showers in the area with a 20%

144

00:04:40,260 --> 00:04:38,620

chance of KC weather preventing tanking

145

00:04:42,659 --> 00:04:40,270

and then as we get to launch we have a

146

00:04:44,730 --> 00:04:42,669

70% chance of can't see weather proving

147

00:04:46,650 --> 00:04:44,740

launch due to our lightning launch

148

00:04:48,600 --> 00:04:46,660

commit criteria violation potential for

149

00:04:50,159 --> 00:04:48,610

the cumulus cloud rule and also

150

00:04:51,990 --> 00:04:50,169

potential for a flight through precip

151

00:04:54,390 --> 00:04:52,000

rule which is actually a UH title

152

00:04:56,279 --> 00:04:54,400

specific rule and then also a showers

153

00:04:58,490 --> 00:04:56,289

and thunderstorms within 20 nautical

154

00:05:02,010 --> 00:04:58,500

miles of the shuttle landing facility

155

00:05:03,180 --> 00:05:02,020

and the towel sides actually look good

156

00:05:04,350 --> 00:05:03,190

spaceflight meteorology group is

157

00:05:07,230 --> 00:05:04,360

forecasting good weather at the Tao

158

00:05:09,480 --> 00:05:07,240

sites for us each day the weather gets a

159

00:05:10,890 --> 00:05:09,490

little bit better we still do have a lot

160

00:05:13,469 --> 00:05:10,900

of moisture in the atmosphere over the

161

00:05:15,210 --> 00:05:13,479

next few days so it's not certainly

162

00:05:17,550 --> 00:05:15,220

clean and green but it does seem to be

163

00:05:18,779 --> 00:05:17,560

improving as all that moisture will

164

00:05:20,219 --> 00:05:18,789

actually move a little bit more to the

165

00:05:21,990 --> 00:05:20,229

north we're still on the moist side of a

166

00:05:23,010 --> 00:05:22,000

weak boundary that's that's still going

167

00:05:24,689 --> 00:05:23,020

to be lingering in the area it's gonna

168

00:05:26,309 --> 00:05:24,699

be a little bit more to the north we're

169

00:05:28,559 --> 00:05:26,319

still on the moist side of that so each

170

00:05:31,140 --> 00:05:28,569

day we'll be watching for more of a

171

00:05:33,149 --> 00:05:31,150

Seabreeze type situation but as we move

172

00:05:34,710 --> 00:05:33,159

forward in time the the launch moves

173

00:05:36,930 --> 00:05:34,720

earlier and so the weather conditions

174

00:05:38,999 --> 00:05:36,940

continue to improve so for day two we

175

00:05:40,800 --> 00:05:39,009

did increase the number to a 60% chance

176

00:05:43,080 --> 00:05:40,810

of KC weather prohibiting launch on

177

00:05:44,879 --> 00:05:43,090

Saturday because we are still very moist

178

00:05:47,760 --> 00:05:44,889

as we get into Sunday that number is

179

00:05:50,129 --> 00:05:47,770

down to a 40% chance of KSC weather

180

00:05:52,230 --> 00:05:50,139

prohibiting launch so again that earlier

181

00:05:53,730 --> 00:05:52,240

launch time continues to help us the

182

00:05:55,439 --> 00:05:53,740

tale sites do look good on day two on

183

00:05:56,670 --> 00:05:55,449

day three there is a chance for some

184

00:05:58,529 --> 00:05:56,680

thunderstorms within two of the Tao

185

00:06:01,499 --> 00:05:58,539

sites and mainly it's due to an Vil

186

00:06:03,420 --> 00:06:01,509

cloud concerns so on that day we'll have

187

00:06:05,640 --> 00:06:03,430

to what basically I'm here eligible we

188

00:06:07,170 --> 00:06:05,650

were watching those so overall we are

189

00:06:09,779 --> 00:06:07,180

concerned about weather for launch we do

190

00:06:13,260 --> 00:06:09,789

have a 70% chance of KSC weather

191

00:06:14,610 --> 00:06:13,270

prohibiting launch kendry thank you when

192

00:06:16,379 --> 00:06:14,620

the microphone comes your way please

193

00:06:18,749 --> 00:06:16,389

state your name and affiliation and to

194

00:06:21,839 --> 00:06:18,759

whom you're addressing your question we

195

00:06:26,370 --> 00:06:21,849

could start over here Kevin in the front

196

00:06:28,320 --> 00:06:26,380

please hi I'm Kevin Fong BBC you have to

197

00:06:31,589 --> 00:06:28,330

understand with we're British so we only

198

00:06:33,120 --> 00:06:31,599

ever talk about the weather and you're

199

00:06:34,890 --> 00:06:33,130

the most important we're the woman in

200

00:06:38,430 --> 00:06:34,900

the world for me today so I just

201
00:06:39,810 --> 00:06:38,440
wondered how how what it's like to feel

202
00:06:40,830 --> 00:06:39,820
the pressure of getting this forecast

203
00:06:44,170 --> 00:06:40,840
right Kathy

204
00:06:47,080 --> 00:06:44,180
well it'll kind of depend on launch day

205
00:06:49,180 --> 00:06:47,090
on how it is really if it's a very bad

206
00:06:51,610 --> 00:06:49,190
situation it's kind of obvious and we'll

207
00:06:52,990 --> 00:06:51,620
just be read when it gets interesting as

208
00:06:55,270 --> 00:06:53,000
when it's a little more in between and

209
00:06:57,100 --> 00:06:55,280
so then I'll be talking to Mike quite a

210
00:06:58,840 --> 00:06:57,110
bit but I have a whole team it's not

211
00:07:00,730 --> 00:06:58,850
just me they're working that we have a

212
00:07:01,720 --> 00:07:00,740
whole team of meteorologists that are

213
00:07:03,670 --> 00:07:01,730

working that are trained on the

214

00:07:06,790 --> 00:07:03,680

Lightning launch commit criteria and our

215

00:07:07,900 --> 00:07:06,800

launch criteria and so they're what we

216

00:07:09,940 --> 00:07:07,910

have somebody manning the radar or

217

00:07:12,250 --> 00:07:09,950

somebody listening to it the aircraft is

218

00:07:14,410 --> 00:07:12,260

telling us we have people manning all

219

00:07:14,860 --> 00:07:14,420

these different positions so it's really

220

00:07:16,360 --> 00:07:14,870

um

221

00:07:18,070 --> 00:07:16,370

I wouldn't call it pressure I call it

222

00:07:21,340 --> 00:07:18,080

exciting it's really more of an exciting

223

00:07:23,290 --> 00:07:21,350

situation we get into it's not it's not

224

00:07:24,640 --> 00:07:23,300

really I guess a feeling like stress

225

00:07:26,560 --> 00:07:24,650

until maybe afterwards and you're kind

226

00:07:29,050 --> 00:07:26,570

of big letdown if you do happen to scrum

227

00:07:32,980 --> 00:07:29,060

but but so that's kind of how it how it

228

00:07:35,650 --> 00:07:32,990

is Marsha mm-hmm Marsha den Associated

229

00:07:37,270 --> 00:07:35,660

Press for Mike Moses how bad of a

230

00:07:39,520 --> 00:07:37,280

forecast would you have to see it and

231

00:07:42,970 --> 00:07:39,530

not even bother tanking Friday morning

232

00:07:44,770 --> 00:07:42,980

and for either of the mics do you get a

233

00:07:47,200 --> 00:07:44,780

sense any sense at all that your work

234

00:07:49,720 --> 00:07:47,210

force wouldn't mind to see a nice big

235

00:07:53,260 --> 00:07:49,730

couple of scrubs so that they could stay

236

00:07:55,420 --> 00:07:53,270

employed longer let's see the answer the

237

00:07:58,810 --> 00:07:55,430

second one it's a definite no we are not

238

00:08:00,040 --> 00:07:58,820

at all in the mode that the taking more

239

00:08:01,900 --> 00:08:00,050

time to make this launch happen is a

240

00:08:03,430 --> 00:08:01,910

good thing the teams ready they're

241

00:08:05,110 --> 00:08:03,440

they're prepared everything's in the

242

00:08:08,110 --> 00:08:05,120

right spot this is a normal countdown

243

00:08:10,720 --> 00:08:08,120

for us it's time to go and so we're more

244

00:08:14,380 --> 00:08:10,730

than ready so there's no feeling of a

245

00:08:18,490 --> 00:08:14,390

scrub is a good thing the is too far how

246

00:08:20,080 --> 00:08:18,500

bad the forecast has to be yeah yeah I

247

00:08:21,370 --> 00:08:20,090

only know of one way to make it a

248

00:08:22,750 --> 00:08:21,380

hundred percent no-go forecast and

249

00:08:24,880 --> 00:08:22,760

that's to not put proponent in the tank

250

00:08:28,090 --> 00:08:24,890

so I'll leave it at that

251

00:08:29,920 --> 00:08:28,100

so I've tanked before it at 70% no-go

252

00:08:31,720 --> 00:08:29,930

the program we've tanked at 90 percent

253

00:08:33,760 --> 00:08:31,730

no-go and launched that day we've also

254

00:08:35,980 --> 00:08:33,770

tanked it 20 percent go and scrub that

255

00:08:38,409 --> 00:08:35,990

day so the forecast is a forecast and

256

00:08:40,300 --> 00:08:38,419

even 12 hours out it's still a forecast

257

00:08:42,100 --> 00:08:40,310

yeah it really kind of depends on my

258

00:08:44,050 --> 00:08:42,110

mind too and why can I talk about it a

259

00:08:45,910 --> 00:08:44,060

lot before tanking it depends on my mind

260

00:08:48,430 --> 00:08:45,920

on the confidence of the forecast that

261

00:08:50,260 --> 00:08:48,440

we hear from Cathy and her team if it's

262

00:08:51,970 --> 00:08:50,270

been a steady forecast for a couple of

263

00:08:53,410 --> 00:08:51,980

three days and and has a lot of

264

00:08:54,199 --> 00:08:53,420

confidence in that then and we can

265

00:08:55,790 --> 00:08:54,209

pretty much take

266

00:08:58,009 --> 00:08:55,800

to the bank even though it's another 10

267

00:08:59,329 --> 00:08:58,019

hours away if it's waffling back and

268

00:09:01,280 --> 00:08:59,339

forth between the models then you know

269

00:09:04,489 --> 00:09:01,290

we'd be more inclined to give it a shot

270

00:09:07,369 --> 00:09:04,499

and see what we get at t0 relative to

271

00:09:09,590 --> 00:09:07,379

the team it's like game day a big big

272

00:09:11,239 --> 00:09:09,600

sporting event game day Friday's game

273

00:09:12,379 --> 00:09:11,249

day for us so we don't want to see we

274

00:09:14,559 --> 00:09:12,389

don't want to wait for Saturday and we

275

00:09:18,410 --> 00:09:14,569

want to we want to play the game Friday

276

00:09:21,739 --> 00:09:18,420

mark mark Kirkman interspace news for

277

00:09:23,660 --> 00:09:21,749

Mike Moses just a recap on what you're

278

00:09:27,429 --> 00:09:23,670

thinking going into getting that extra

279

00:09:29,869 --> 00:09:27,439

mission day if if you do weigh and can't

280

00:09:32,210 --> 00:09:29,879

and you have to go Saturday is there any

281

00:09:35,840 --> 00:09:32,220

way to regain that day without with the

282

00:09:37,460 --> 00:09:35,850

loss of that PRS D and let's with the

283

00:09:39,230 --> 00:09:37,470

forecast looking like it is for Saturday

284

00:09:41,689 --> 00:09:39,240

and better option Sunday would you let

285

00:09:43,699 --> 00:09:41,699

the desire to get that extra day back

286

00:09:47,689 --> 00:09:43,709

and drive you into 48 hours and maybe

287

00:09:50,689 --> 00:09:47,699

top off the PRS d so the math ahead of

288

00:09:54,350 --> 00:09:50,699

time shows if you if we try on the 8th

289

00:09:55,999 --> 00:09:54,360

and then scrub and go on the 9th will be

290

00:09:57,350 --> 00:09:56,009

will be a little shorter and I forget

291

00:09:59,419 --> 00:09:57,360

the exact numbers but it's in the for

292

00:10:01,549 --> 00:09:59,429

our range short of getting that extra

293

00:10:04,129 --> 00:10:01,559

day but that's still based on predicted

294

00:10:05,869 --> 00:10:04,139

consumables we might find that the the

295

00:10:08,509 --> 00:10:05,879

the mid-deck payloads don't use as much

296

00:10:11,359 --> 00:10:08,519

powers we were planning the crew we

297

00:10:12,619 --> 00:10:11,369

budget certain you know it'd be like

298

00:10:14,569 --> 00:10:12,629

thinking about trying to predict ahead

299

00:10:16,129 --> 00:10:14,579

of time exactly how many lights you're

300

00:10:18,379 --> 00:10:16,139

gonna have on your house at every given

301
00:10:19,340 --> 00:10:18,389
minute of every day we kind of take an

302
00:10:21,530 --> 00:10:19,350
assumption the crew may or may not

303
00:10:23,239 --> 00:10:21,540
follow that that assumption so we're

304
00:10:25,340 --> 00:10:23,249
gonna go ahead and press with the

305
00:10:26,660 --> 00:10:25,350
keeping the mplm shell heaters off with

306
00:10:29,480 --> 00:10:26,670
the anticipation that we'll continue to

307
00:10:31,910 --> 00:10:29,490
buy back propellant or cry out cryo for

308
00:10:34,449 --> 00:10:31,920
the fuel cells and and so we'll still

309
00:10:36,739 --> 00:10:34,459
try for that and as we talked it FRR

310
00:10:37,910 --> 00:10:36,749
it's a it's highly desired to get the

311
00:10:40,639 --> 00:10:37,920
extra day but it's not going to drive us

312
00:10:41,900 --> 00:10:40,649
to do anything like like do a top off if

313
00:10:43,460 --> 00:10:41,910

we don't really have to we'll go ahead

314

00:10:44,989 --> 00:10:43,470

and and let the vehicle sit on the pad

315

00:10:46,129 --> 00:10:44,999

and boil off if that's the right thing

316

00:10:48,650 --> 00:10:46,139

to do to give us the right number launch

317

00:10:49,730 --> 00:10:48,660

attempt so but if we knew we had a big

318

00:10:53,329 --> 00:10:49,740

stand down come and we would obviously

319

00:10:54,799 --> 00:10:53,339

take that opportunity to top off 48 is a

320

00:10:56,840 --> 00:10:54,809

very tight push Michael tell you that

321

00:10:59,059 --> 00:10:56,850

that's off like a 49 hour operation on a

322

00:11:00,470 --> 00:10:59,069

48 hour time line so just doing it

323

00:11:02,059 --> 00:11:00,480

because he's not really the right answer

324

00:11:02,900 --> 00:11:02,069

so we would not ask them to do that for

325

00:11:04,610 --> 00:11:02,910

that reason

326

00:11:06,110 --> 00:11:04,620

yeah we've looked at it over and over

327

00:11:07,639 --> 00:11:06,120

again in fact we've only ever done it

328

00:11:10,340 --> 00:11:07,649

once it stopped off

329

00:11:12,590 --> 00:11:10,350

commodity and the 48 hours and it was

330

00:11:14,119 --> 00:11:12,600

very very tight we made at that time but

331

00:11:16,009 --> 00:11:14,129

but as I tell Mikey no we just can't

332

00:11:17,929 --> 00:11:16,019

guarantee that we'll give it a best shot

333

00:11:19,100 --> 00:11:17,939

if that's what we what we choose to do

334

00:11:23,569 --> 00:11:19,110

but there's no guarantee you can even

335

00:11:26,869 --> 00:11:23,579

get it done Jim Jim Siegel celebration

336

00:11:29,840 --> 00:11:26,879

independent newspaper I understand that

337

00:11:32,509 --> 00:11:29,850

a number of compartments have been put

338

00:11:33,919 --> 00:11:32,519

aside for mementos and that sort of

339

00:11:36,139 --> 00:11:33,929

thing on the flight and I wondered if

340

00:11:37,879 --> 00:11:36,149

you could give us a rundown if you know

341

00:11:39,739 --> 00:11:37,889

of the kinds of things that are going to

342

00:11:42,019 --> 00:11:39,749

be carried aboard the shuttle especially

343

00:11:47,329 --> 00:11:42,029

anything kind of unique this being the

344

00:11:48,470 --> 00:11:47,339

the last mission actually we can get it

345

00:11:50,269 --> 00:11:48,480

get you a list and there'll be an

346

00:11:52,280 --> 00:11:50,279

extensive payload briefing tomorrow at

347

00:11:54,669 --> 00:11:52,290

the L minus 1 countdown status briefing

348

00:11:59,509 --> 00:11:54,679

so we can get that for you afterward

349

00:12:02,689 --> 00:11:59,519

okay we'll come over here now a second

350

00:12:05,210 --> 00:12:02,699

row please John business sirius XM

351

00:12:07,730 --> 00:12:05,220

satellite radio mike is there a sense

352

00:12:10,460 --> 00:12:07,740

among the team we've done this so many

353

00:12:11,720 --> 00:12:10,470

times before this is the last one many

354

00:12:14,900 --> 00:12:11,730

more eyes are on us

355

00:12:19,400 --> 00:12:14,910

thank goodness nothing's biting us well

356

00:12:21,290 --> 00:12:19,410

I guess this Michael answer that you

357

00:12:24,379 --> 00:12:21,300

know when when you get on console in the

358

00:12:26,900 --> 00:12:24,389

control room on launch day we're

359

00:12:30,199 --> 00:12:26,910

oblivious to the outside world looking

360

00:12:31,280 --> 00:12:30,209

at us and that's an absolute truism we

361

00:12:32,869 --> 00:12:31,290

have our jobs to do and we're

362

00:12:35,389 --> 00:12:32,879

concentrating very serious about it

363

00:12:36,679 --> 00:12:35,399

obviously so leading into it yeah we

364

00:12:38,840 --> 00:12:36,689

know there's a lot more interest in the

365

00:12:41,179 --> 00:12:38,850

final launch but when we're on console

366

00:12:42,949 --> 00:12:41,189

Friday morning it's going to be like any

367

00:12:44,600 --> 00:12:42,959

other launch well we will launch if the

368

00:12:47,989 --> 00:12:44,610

vehicle is ready and we won't if it's

369

00:12:50,179 --> 00:12:47,999

not I guess the sense of my question was

370

00:12:51,410 --> 00:12:50,189

sort of a professional pride that thank

371

00:12:53,389 --> 00:12:51,420

goodness nothing's biting us we've done

372

00:12:55,179 --> 00:12:53,399

our job so well that here we are looking

373

00:12:58,129 --> 00:12:55,189

at the weather is the only showstopper

374

00:12:59,360 --> 00:12:58,139

yeah that's a funny one too because we

375

00:13:02,269 --> 00:12:59,370

always want to have something to talk

376

00:13:04,669 --> 00:13:02,279

about and if there's absolutely nothing

377

00:13:06,049 --> 00:13:04,679

then then we start to really worry so at

378

00:13:07,220 --> 00:13:06,059

the mission management team briefing

379

00:13:08,840 --> 00:13:07,230

this morning I talked about a little

380

00:13:11,470 --> 00:13:08,850

issue with our tachyons system at the

381

00:13:13,879 --> 00:13:11,480

SLS this is an issue we have probably

382

00:13:14,780 --> 00:13:13,889

20% of the time at the TAC hands system

383

00:13:17,809 --> 00:13:14,790

but it was the only thing to talk about

384

00:13:19,639 --> 00:13:17,819

so we did it it's a type of thing where

385

00:13:21,060 --> 00:13:19,649

you know we're all engineers we need

386

00:13:23,130 --> 00:13:21,070

something to worry about

387

00:13:27,720 --> 00:13:23,140

so that that was today's worry it's

388

00:13:29,640 --> 00:13:27,730

fixed by the way David chuckman BBC News

389

00:13:30,990 --> 00:13:29,650

another Brit obsessed with the weather I

390

00:13:35,430 --> 00:13:31,000

could you just talk through the process

391

00:13:38,040 --> 00:13:35,440

of if you 1:30 a.m. on Friday starts the

392

00:13:41,930 --> 00:13:38,050

tanking how difficult is it to stop it

393

00:13:44,250 --> 00:13:41,940

if you if the weather changes question 4

394

00:13:46,380 --> 00:13:44,260

so we have a couple of decision point

395

00:13:47,970 --> 00:13:46,390

milestones and the the decision to start

396

00:13:49,920 --> 00:13:47,980

the tanking or not actually that we can

397

00:13:51,990 --> 00:13:49,930

even back up further so tomorrow whether

398

00:13:53,880 --> 00:13:52,000

we retract the RSS or not and roll the

399

00:13:55,260 --> 00:13:53,890

RSS back is of weather there's weather

400

00:13:57,270 --> 00:13:55,270

criteria that go with that go no-go

401
00:13:59,970 --> 00:13:57,280
decision and we can delay it quite a bit

402
00:14:01,620 --> 00:13:59,980
and as we've practiced a lot lately and

403
00:14:03,780 --> 00:14:01,630
and still make that so that's obviously

404
00:14:05,490 --> 00:14:03,790
that has to get done and to support the

405
00:14:08,340 --> 00:14:05,500
timeline to be ready to start tanking at

406
00:14:09,810 --> 00:14:08,350
at 2 a.m. tomorrow or Friday morning so

407
00:14:11,790 --> 00:14:09,820
then right before we start that we'll

408
00:14:13,530 --> 00:14:11,800
have a decision to say hey before we go

409
00:14:16,080 --> 00:14:13,540
through the act of doing this because it

410
00:14:17,880 --> 00:14:16,090
is a big hazardous operation do we have

411
00:14:19,230 --> 00:14:17,890
a better than decent chance of launching

412
00:14:20,940 --> 00:14:19,240
that day and are there any other

413
00:14:22,440 --> 00:14:20,950

considerations to say maybe there's a

414

00:14:25,020 --> 00:14:22,450

better day coming we want to save that

415

00:14:26,520 --> 00:14:25,030

chance to go once we start tanking at

416

00:14:28,140 --> 00:14:26,530

that point we'd pretty much proceed on

417

00:14:29,310 --> 00:14:28,150

we wouldn't have decided to do it unless

418

00:14:31,710 --> 00:14:29,320

we thought the weather was going to be

419

00:14:33,060 --> 00:14:31,720

good if there's there's there's commit

420

00:14:36,270 --> 00:14:33,070

criteria that have to be satisfied as

421

00:14:37,290 --> 00:14:36,280

you go weather-related that could stop

422

00:14:39,390 --> 00:14:37,300

us I think it's only within the first

423

00:14:41,850 --> 00:14:39,400

half hour Mike yeah first hour that the

424

00:14:43,820 --> 00:14:41,860

lightning lightning rules apply and so

425

00:14:46,050 --> 00:14:43,830

after that we really switch into a

426
00:14:47,880 --> 00:14:46,060
launch commit criteria there's there's a

427
00:14:49,470 --> 00:14:47,890
series of column red light green light

428
00:14:51,780 --> 00:14:49,480
gates that have to be passed and as long

429
00:14:53,610 --> 00:14:51,790
as everything's green we proceed on even

430
00:14:55,710 --> 00:14:53,620
though the ultimate launch weather might

431
00:14:58,440 --> 00:14:55,720
still be showing red we'd go right up

432
00:15:00,240 --> 00:14:58,450
until whatever milestone we chose to say

433
00:15:02,580 --> 00:15:00,250
we don't want to go behind usually we

434
00:15:03,780 --> 00:15:02,590
call that at t-minus nine minutes one

435
00:15:05,580 --> 00:15:03,790
thing Mike and I've talked about that

436
00:15:07,380 --> 00:15:05,590
because of the traffic concerns on a

437
00:15:09,030 --> 00:15:07,390
scrub we don't know that we could get

438
00:15:10,680 --> 00:15:09,040

everybody back 24 hours later and have

439

00:15:13,050 --> 00:15:10,690

the whole team ready to support with all

440

00:15:14,820 --> 00:15:13,060

the traffic delays getting home if we

441

00:15:16,890 --> 00:15:14,830

get inside of about four hours or so we

442

00:15:19,590 --> 00:15:16,900

might want to scrub out for 48 hours

443

00:15:20,970 --> 00:15:19,600

instead of just 24 so if at the four

444

00:15:22,260 --> 00:15:20,980

hour mark we're gonna take another look

445

00:15:24,390 --> 00:15:22,270

at the weather and if it still really

446

00:15:26,490 --> 00:15:24,400

truly looks horrible and there's just no

447

00:15:28,020 --> 00:15:26,500

chance of going we might choose then to

448

00:15:29,880 --> 00:15:28,030

scrub something we probably wouldn't

449

00:15:31,470 --> 00:15:29,890

have done in the past because we didn't

450

00:15:32,790 --> 00:15:31,480

have this traffic concerns so there's

451
00:15:34,260 --> 00:15:32,800
all those little milestones that Mike

452
00:15:34,860 --> 00:15:34,270
and I'll have as we make our decisions

453
00:15:37,110 --> 00:15:34,870
as we go

454
00:15:38,850 --> 00:15:37,120
but there's no real all the weather's

455
00:15:40,650 --> 00:15:38,860
too bad stop right now kind of call

456
00:15:45,420 --> 00:15:40,660
until you get actual launch weather on

457
00:15:47,100 --> 00:15:45,430
the t0 the actual second of launch back

458
00:15:48,660 --> 00:15:47,110
over here with Bill please bill Harwood

459
00:15:49,829 --> 00:15:48,670
CBS News with two quick ones one for

460
00:15:52,079 --> 00:15:49,839
Kathy is is this the kind of weather

461
00:15:54,840 --> 00:15:52,089
they can generate hail once the RSS is

462
00:15:57,030 --> 00:15:54,850
back no it's more of a tropical type

463
00:15:58,620 --> 00:15:57,040

airmass we're moist all the way through

464

00:16:00,120 --> 00:15:58,630

the profile usually if we have some dry

465

00:16:02,400 --> 00:16:00,130

air aloft and some cooler air aloft

466

00:16:04,079 --> 00:16:02,410

we're watching for hail but in this case

467

00:16:05,760 --> 00:16:04,089

we're pretty warm aloft for the next

468

00:16:07,050 --> 00:16:05,770

several days and we're also very moist

469

00:16:08,579 --> 00:16:07,060

all the way through the profile so we're

470

00:16:10,260 --> 00:16:08,589

really not looking for severe weather at

471

00:16:13,710 --> 00:16:10,270

all with this system or looking just

472

00:16:15,360 --> 00:16:13,720

more just a lot of nuisance weather Mike

473

00:16:16,890 --> 00:16:15,370

Leinbach I know that on launch day when

474

00:16:18,480 --> 00:16:16,900

you guys in the furn room you focus I

475

00:16:20,340 --> 00:16:18,490

understand that completely but you're

476
00:16:21,840 --> 00:16:20,350
not in the phone room right now and when

477
00:16:23,910 --> 00:16:21,850
you drive to work I'm just wondering

478
00:16:26,550 --> 00:16:23,920
what you're thinking about is this final

479
00:16:27,600 --> 00:16:26,560
launch campaign drives down I mean you

480
00:16:29,070 --> 00:16:27,610
know I mean just driving in the day I

481
00:16:30,390 --> 00:16:29,080
was looking at the VAB and looking at

482
00:16:33,660 --> 00:16:30,400
people and thinking this is going to be

483
00:16:36,180 --> 00:16:33,670
different very soon what is the mood

484
00:16:37,740 --> 00:16:36,190
like out there well you know as I

485
00:16:39,240 --> 00:16:37,750
described the other day it's it's

486
00:16:40,579 --> 00:16:39,250
getting more and more somber the closer

487
00:16:44,280 --> 00:16:40,589
we're getting to the end of the program

488
00:16:46,800 --> 00:16:44,290

you know there are people millions of

489

00:16:48,660 --> 00:16:46,810

people in this country that have grown

490

00:16:50,910 --> 00:16:48,670

up with the shuttle program and have

491

00:16:52,800 --> 00:16:50,920

never been alive without the shuttle

492

00:16:54,870 --> 00:16:52,810

flying and anyone under the age of 30

493

00:16:57,600 --> 00:16:54,880

has always had the shuttle program as a

494

00:17:00,510 --> 00:16:57,610

part of Americana and that we won't have

495

00:17:03,269 --> 00:17:00,520

anymore and so it did I think it touches

496

00:17:06,120 --> 00:17:03,279

people outside the Space Center to a

497

00:17:07,880 --> 00:17:06,130

degree as well inside the Space Center

498

00:17:10,169 --> 00:17:07,890

it's going to be significantly different

499

00:17:11,579 --> 00:17:10,179

we'll be preparing for the next program

500

00:17:14,189 --> 00:17:11,589

and hopefully we get definition on that

501
00:17:15,780 --> 00:17:14,199
relatively soon and we'll get up get on

502
00:17:18,890 --> 00:17:15,790
the business about preparing the Space

503
00:17:20,760 --> 00:17:18,900
Center for the next the next program it

504
00:17:23,549 --> 00:17:20,770
I'll tell you it's getting more and more

505
00:17:25,169 --> 00:17:23,559
somber the closer it gets and but that

506
00:17:27,449 --> 00:17:25,179
doesn't detract from the professionalism

507
00:17:29,419 --> 00:17:27,459
and cohesiveness of this team that I've

508
00:17:32,880 --> 00:17:29,429
grown to love so much over the years

509
00:17:35,040 --> 00:17:32,890
okay Irene please thanks Irene Klotz

510
00:17:38,370 --> 00:17:35,050
with Reuters I have two questions for

511
00:17:40,260 --> 00:17:38,380
Mike Leinbach what's the plan for pad

512
00:17:43,320 --> 00:17:40,270
39a after launch

513
00:17:45,180 --> 00:17:43,330

well you guys have people go in and do

514

00:17:47,830 --> 00:17:45,190

inspections and make repairs or do you

515

00:17:50,529 --> 00:17:47,840

just leave it until some

516

00:17:51,070 --> 00:17:50,539

thing there's some directive of what to

517

00:17:52,840 --> 00:17:51,080

do with it

518

00:17:55,240 --> 00:17:52,850

well see well we'll go through our

519

00:17:57,850 --> 00:17:55,250

standard post-launch saving and securing

520

00:18:00,669 --> 00:17:57,860

operations we send out a team of about

521

00:18:02,230 --> 00:18:00,679

50 folks maybe on the order of 45

522

00:18:03,940 --> 00:18:02,240

minutes or so after launch to make sure

523

00:18:06,010 --> 00:18:03,950

the no leaks or fires that type of thing

524

00:18:07,570 --> 00:18:06,020

if there's any damage will repair that

525

00:18:08,470 --> 00:18:07,580

damage just to get the systems in good

526

00:18:10,899 --> 00:18:08,480

shape

527

00:18:13,330 --> 00:18:10,909

from an agency perspective what we're

528

00:18:15,279 --> 00:18:13,340

being asked to do is keep pate and and

529

00:18:16,990 --> 00:18:15,289

shuttle shape is the way I describe it

530

00:18:18,549 --> 00:18:17,000

don't you know we're not going to start

531

00:18:20,799 --> 00:18:18,559

dismantling pate right away

532

00:18:22,240 --> 00:18:20,809

we need to keep it in a roughly shuttle

533

00:18:23,830 --> 00:18:22,250

shape in case the next program could

534

00:18:26,529 --> 00:18:23,840

utilize some of those facilities out

535

00:18:28,090 --> 00:18:26,539

there unlike pad B where we're taking it

536

00:18:29,919 --> 00:18:28,100

all the way down to the ground so we're

537

00:18:31,990 --> 00:18:29,929

going to have a clean pad off pad B if

538

00:18:33,490 --> 00:18:32,000

anyone wants to come and launch off that

539

00:18:34,990 --> 00:18:33,500

pad with their own mobile launcher in

540

00:18:37,419 --> 00:18:35,000

their own Tower and their own services

541

00:18:39,279 --> 00:18:37,429

and then pate will remain relatively the

542

00:18:41,649 --> 00:18:39,289

same for a period of time and I can't

543

00:18:43,570 --> 00:18:41,659

tell you that period of time yet but we

544

00:18:47,409 --> 00:18:43,580

will not go right into an immediate

545

00:18:50,169 --> 00:18:47,419

demolition of pad a by any means and the

546

00:18:52,330 --> 00:18:50,179

next question is for either of you aside

547

00:18:55,299 --> 00:18:52,340

from talking about takin's did you was

548

00:18:57,460 --> 00:18:55,309

there any comments to the team either

549

00:19:00,940 --> 00:18:57,470

before the start of the account or at

550

00:19:02,799 --> 00:19:00,950

the MMT today that that puts some

551
00:19:08,529 --> 00:19:02,809
framework and some context for this

552
00:19:12,010 --> 00:19:08,539
being the last flight so at the MMT

553
00:19:13,870 --> 00:19:12,020
today we didn't at the very end I gave

554
00:19:15,580 --> 00:19:13,880
the team just a reminder that there's a

555
00:19:16,960 --> 00:19:15,590
lot of distractions and and you know

556
00:19:18,220 --> 00:19:16,970
their jobs to make sure their teams got

557
00:19:20,769 --> 00:19:18,230
what they needed and are ready to talk

558
00:19:23,320 --> 00:19:20,779
and just stay on our normal processes

559
00:19:24,610 --> 00:19:23,330
and procedures that one thing that helps

560
00:19:26,440 --> 00:19:24,620
minimize those distractions is just

561
00:19:28,480 --> 00:19:26,450
treat this as business as usual so know

562
00:19:31,389 --> 00:19:28,490
nothing about a speech about this being

563
00:19:33,820 --> 00:19:31,399

last launch I'll add a little bit in the

564

00:19:37,269 --> 00:19:33,830

pretest briefing I consciously told and

565

00:19:39,669 --> 00:19:37,279

told myself not to not to lecture the

566

00:19:42,190 --> 00:19:39,679

team we've been told so often over the

567

00:19:45,760 --> 00:19:42,200

last three to six months to a year to

568

00:19:47,529 --> 00:19:45,770

focus focus focus and we are focused we

569

00:19:49,090 --> 00:19:47,539

don't need to be told that again and and

570

00:19:54,460 --> 00:19:49,100

so I didn't want to I didn't want to lay

571

00:19:58,060 --> 00:19:54,470

that on my team again James James DeMuth

572

00:20:00,190 --> 00:19:58,070

Florida today Mike Moses shuttle flying

573

00:20:01,210 --> 00:20:00,200

up crew and cargo to serve as a Space

574

00:20:05,020 --> 00:20:01,220

Station kind of

575

00:20:07,750 --> 00:20:05,030

what it was originally intended to do

576
00:20:11,080 --> 00:20:07,760
imagine that it would do in its concept

577
00:20:13,659 --> 00:20:11,090
when it wouldn't when it was just an

578
00:20:14,950 --> 00:20:13,669
idea you know decades ago so I guess

579
00:20:17,289 --> 00:20:14,960
maybe a little strange to be ending

580
00:20:19,990 --> 00:20:17,299
while it's performing that service but

581
00:20:21,850 --> 00:20:20,000
you see some maybe symbolism or

582
00:20:24,760 --> 00:20:21,860
satisfaction in it and the last mission

583
00:20:25,870 --> 00:20:24,770
kind of doing exactly what the the goal

584
00:20:28,029 --> 00:20:25,880
was from the start

585
00:20:29,470 --> 00:20:28,039
yeah you look back at the one of the

586
00:20:30,580 --> 00:20:29,480
original design features of the shuttle

587
00:20:32,830 --> 00:20:30,590
was to be able to enable the

588
00:20:35,380 --> 00:20:32,840

construction of the space station and we

589

00:20:37,630 --> 00:20:35,390

did just that and we built built a heck

590

00:20:40,120 --> 00:20:37,640

of a national asset up in orbit and a

591

00:20:43,000 --> 00:20:40,130

National Laboratory an international

592

00:20:44,620 --> 00:20:43,010

asset to shouldn't just focus on the

593

00:20:46,899 --> 00:20:44,630

American part of this it's truly an

594

00:20:48,549 --> 00:20:46,909

international partnership that alone is

595

00:20:49,750 --> 00:20:48,559

a great legacy of the shuttle

596

00:20:51,669 --> 00:20:49,760

programming that we enabled the

597

00:20:55,210 --> 00:20:51,679

construction of that of that facility so

598

00:20:57,250 --> 00:20:55,220

yeah there is some poetic completeness

599

00:20:58,899 --> 00:20:57,260

to the fact that that we're basically

600

00:21:01,480 --> 00:20:58,909

going to go stock it up for a year and

601
00:21:03,580 --> 00:21:01,490
and ensure its viability in the coming

602
00:21:05,049 --> 00:21:03,590
in the coming times while with the the

603
00:21:06,279 --> 00:21:05,059
next generation of service craft get up

604
00:21:12,250 --> 00:21:06,289
there to to take care of the space

605
00:21:14,020 --> 00:21:12,260
station and Mike Leinbach how important

606
00:21:15,909 --> 00:21:14,030
will it be if we're fortunate enough to

607
00:21:19,930 --> 00:21:15,919
get a Florida landing assuming you you

608
00:21:21,730 --> 00:21:19,940
get off first you know how what do you

609
00:21:24,340 --> 00:21:21,740
think your feelings will be just getting

610
00:21:27,820 --> 00:21:24,350
Atlantis back as you know our shuttle as

611
00:21:30,789 --> 00:21:27,830
we're calling it for you personally your

612
00:21:34,000 --> 00:21:30,799
teammates who will you know still be

613
00:21:36,340 --> 00:21:34,010

here before for wheelstop and all to

614

00:21:39,909 --> 00:21:36,350

just know and that's that's the vehicle

615

00:21:41,890 --> 00:21:39,919

is staying here how important will that

616

00:21:43,630 --> 00:21:41,900

be to see it come here if well what

617

00:21:46,810 --> 00:21:43,640

atlantis at last will be home for the

618

00:21:48,940 --> 00:21:46,820

for the duration of her life to be sure

619

00:21:50,529 --> 00:21:48,950

and I think I speak for everyone at KSC

620

00:21:56,000 --> 00:21:50,539

that it would really stink if we landed

621

00:21:59,720 --> 00:21:58,250

but the aintry flight director Tony

622

00:22:02,030 --> 00:21:59,730

he'll do the right thing and if we go

623

00:22:03,380 --> 00:22:02,040

west we go west that's fine but we all

624

00:22:04,700 --> 00:22:03,390

want to see Atlantis come home here and

625

00:22:07,730 --> 00:22:04,710

celebrate with the crew when they get

626

00:22:09,290 --> 00:22:07,740

off the vehicle and be able to look at

627

00:22:11,120 --> 00:22:09,300

Atlantis and the great things she's done

628

00:22:14,780 --> 00:22:11,130

over her career and be thankful to that

629

00:22:16,120 --> 00:22:14,790

she's home safe we'll go over here on

630

00:22:18,800 --> 00:22:16,130

the end please

631

00:22:20,240 --> 00:22:18,810

Sawyer Rosenstein for talking space for

632

00:22:22,040 --> 00:22:20,250

either Mike

633

00:22:24,440 --> 00:22:22,050

I was wondering besides you know

634

00:22:27,110 --> 00:22:24,450

bringing up supplies and made the extra

635

00:22:29,210 --> 00:22:27,120

days added for the the load on the

636

00:22:30,440 --> 00:22:29,220

four-person crew I was wondering if

637

00:22:32,210 --> 00:22:30,450

there's anything that you plan to do

638

00:22:33,440 --> 00:22:32,220

differently when the shuttle is at the

639

00:22:38,120 --> 00:22:33,450

station than you would normally do on a

640

00:22:40,070 --> 00:22:38,130

mission let's see there's some of the

641

00:22:40,940 --> 00:22:40,080

timeline sequencing has changed just a

642

00:22:43,820 --> 00:22:40,950

little bit to accommodate that

643

00:22:44,990 --> 00:22:43,830

four-person crew but most of the tasks

644

00:22:48,680 --> 00:22:45,000

are done on the same days that they

645

00:22:50,510 --> 00:22:48,690

would be done most notably is the the

646

00:22:52,430 --> 00:22:50,520

GPS the thermal protection inspections

647

00:22:54,440 --> 00:22:52,440

we do on flight day two and then after

648

00:22:56,900 --> 00:22:54,450

we undock that's a very intensive

649

00:22:58,820 --> 00:22:56,910

robotic operation and we usually have

650

00:23:01,040 --> 00:22:58,830

that time lined and typically when we

651

00:23:03,080 --> 00:23:01,050

lay out the timeline it runs for six to

652

00:23:04,310 --> 00:23:03,090

seven hours and we schedule a an hour

653

00:23:05,570 --> 00:23:04,320

lunch break for the crew but they

654

00:23:07,250 --> 00:23:05,580

typically work right through it and just

655

00:23:08,990 --> 00:23:07,260

trade off crewmen on a four person crew

656

00:23:10,520 --> 00:23:09,000

we actually expect them to stop any

657

00:23:12,380 --> 00:23:10,530

lunch rather than continue to work

658

00:23:14,480 --> 00:23:12,390

through lunch so that's probably the

659

00:23:16,670 --> 00:23:14,490

most notable difference the rendezvous

660

00:23:17,870 --> 00:23:16,680

profiles all the same then the tools

661

00:23:20,360 --> 00:23:17,880

they they'll use and the way they

662

00:23:21,440 --> 00:23:20,370

execute will all be the same one thing

663

00:23:22,550 --> 00:23:21,450

we're doing different which doesn't have

664

00:23:24,860 --> 00:23:22,560

anything to do with the four-person crew

665

00:23:26,180 --> 00:23:24,870

but after we undock when we do a fly

666

00:23:28,430 --> 00:23:26,190

around normally we do the fly around

667

00:23:30,050 --> 00:23:28,440

around the x-axis and you see the solar

668

00:23:31,940 --> 00:23:30,060

arrays pointing straight out as we fly

669

00:23:33,430 --> 00:23:31,950

around this time we're going to back out

670

00:23:36,290 --> 00:23:33,440

and let the station turn 90 degrees

671

00:23:37,820 --> 00:23:36,300

point that long truss at us and then fly

672

00:23:39,530 --> 00:23:37,830

around the long axis of the station just

673

00:23:41,210 --> 00:23:39,540

give us a different set of engineering

674

00:23:43,010 --> 00:23:41,220

views there's Hardware out on the ends

675

00:23:44,630 --> 00:23:43,020

of those trusses that we don't get very

676
00:23:46,160 --> 00:23:44,640
high resolution photos all the time and

677
00:23:48,350 --> 00:23:46,170
so this will be the last chance to get

678
00:23:50,420 --> 00:23:48,360
some good documentation you know we

679
00:23:51,650 --> 00:23:50,430
learned a lot that fly around looks real

680
00:23:52,970 --> 00:23:51,660
pretty and lets us take pictures but

681
00:23:55,130 --> 00:23:52,980
it's got a true engineering purpose and

682
00:23:56,900 --> 00:23:55,140
it evaluates the state and the health of

683
00:23:58,700 --> 00:23:56,910
all those things outside there's a the

684
00:24:00,440 --> 00:23:58,710
atomic oxygen environment the marker

685
00:24:02,420 --> 00:24:00,450
meteorite debris our environment on the

686
00:24:03,620 --> 00:24:02,430
outside of the station is is it's a

687
00:24:05,600 --> 00:24:03,630
hazardous environment up there and we'd

688
00:24:07,280 --> 00:24:05,610

like to know what's what's condition the

689

00:24:08,830 --> 00:24:07,290

station's in so that's a unique thing

690

00:24:09,580 --> 00:24:08,840

we're doing on this mission but

691

00:24:11,110 --> 00:24:09,590

doesn't have anything to do with our

692

00:24:12,430 --> 00:24:11,120

four-person crew it is just the chance

693

00:24:16,960 --> 00:24:12,440

to do that so that's really that's

694

00:24:18,940 --> 00:24:16,970

really it for this mission at arc thank

695

00:24:20,919 --> 00:24:18,950

you tarik Malek with the space lock home

696

00:24:22,029 --> 00:24:20,929

I think I have two quick ones first for

697

00:24:24,669 --> 00:24:22,039

Kathy I'm just wondering you know you

698

00:24:26,350 --> 00:24:24,679

talked a lot about the weather for those

699

00:24:28,060 --> 00:24:26,360

of us that maybe don't live in Florida

700

00:24:29,169 --> 00:24:28,070

all the time I'm just wondering is it is

701
00:24:31,960 --> 00:24:29,179
it difficult it's strange

702
00:24:35,529 --> 00:24:31,970
is it is it just what you'd expect for a

703
00:24:37,419 --> 00:24:35,539
July in in Florida it is pretty typical

704
00:24:39,190 --> 00:24:37,429
we get these easterly waves you know

705
00:24:41,470 --> 00:24:39,200
later in the season they might even

706
00:24:43,750 --> 00:24:41,480
become something tropical in this case

707
00:24:45,519 --> 00:24:43,760
it's it is a tropical way but it's not

708
00:24:48,220 --> 00:24:45,529
going to develop into anything more than

709
00:24:50,080 --> 00:24:48,230
that and they just roll in and we tend

710
00:24:51,880 --> 00:24:50,090
to get a lot of rain with them not as

711
00:24:54,250 --> 00:24:51,890
much lightning as we would on a typical

712
00:24:55,750 --> 00:24:54,260
afternoon thunderstorm day but it is not

713
00:24:57,580 --> 00:24:55,760

unusual for us to get these easterly

714

00:24:59,669 --> 00:24:57,590

waves through and have them come into

715

00:25:03,340 --> 00:24:59,679

the area and give us a lot of weather

716

00:25:04,539 --> 00:25:03,350

thank you and from Mike Leinbach you

717

00:25:05,950 --> 00:25:04,549

know I'm just wondering it is the last

718

00:25:08,200 --> 00:25:05,960

shuttle mission and I know that the

719

00:25:09,820 --> 00:25:08,210

schedules relatively busy as you guys

720

00:25:11,169 --> 00:25:09,830

count down but I'm wondering if you or

721

00:25:13,450 --> 00:25:11,179

any of your team if anyone's taking the

722

00:25:16,029 --> 00:25:13,460

time when they've got it to either just

723

00:25:18,880 --> 00:25:16,039

you know gaze at the shuttle maybe go

724

00:25:20,590 --> 00:25:18,890

out do a last walk down give it a pat if

725

00:25:22,690 --> 00:25:20,600

you have a chance you know is there

726

00:25:25,299 --> 00:25:22,700

anything like that that you're doing or

727

00:25:27,820 --> 00:25:25,309

would you like to we've done quite a few

728

00:25:29,680 --> 00:25:27,830

things like that already at arc we of

729

00:25:31,419 --> 00:25:29,690

course will roll out well even before

730

00:25:33,279 --> 00:25:31,429

roll out when Atlantis came over to the

731

00:25:35,560 --> 00:25:33,289

Vehicle Assembly Building from the from

732

00:25:37,779 --> 00:25:35,570

the OPF we stopped for a couple hours

733

00:25:39,610 --> 00:25:37,789

several hours and and and had people

734

00:25:41,049 --> 00:25:39,620

stand up next to vehicle and get

735

00:25:43,750 --> 00:25:41,059

pictures of themselves of their team

736

00:25:45,580 --> 00:25:43,760

with the vehicle you know we had the the

737

00:25:46,930 --> 00:25:45,590

roll out event the night of a roll out

738

00:25:49,560 --> 00:25:46,940

where we lit the vehicle up with the

739

00:25:52,029 --> 00:25:49,570

Xenon's and had and family members over

740

00:25:54,220 --> 00:25:52,039

3500 I believe it was family members out

741

00:25:55,779 --> 00:25:54,230

here watching the roll out now at the

742

00:25:58,210 --> 00:25:55,789

launch pad we've had special walk downs

743

00:25:59,649 --> 00:25:58,220

when we got to the pad we left the RSS

744

00:26:01,990 --> 00:25:59,659

retracted for a period of time so we

745

00:26:03,490 --> 00:26:02,000

could take more pictures so and that's

746

00:26:06,669 --> 00:26:03,500

been common for the last three vehicles

747

00:26:08,950 --> 00:26:06,679

all the the lasts not just Atlantis so

748

00:26:11,080 --> 00:26:08,960

we've made a conscious effort to to

749

00:26:13,060 --> 00:26:11,090

celebrate these machines and and and

750

00:26:15,399 --> 00:26:13,070

have people who come out and view them

751
00:26:16,810 --> 00:26:15,409
and have their picture taken and a lot

752
00:26:18,909 --> 00:26:16,820
of times it's people that don't get to

753
00:26:19,840 --> 00:26:18,919
work on the on the vehicles it could be

754
00:26:22,330 --> 00:26:19,850
you know folks in the headquarters

755
00:26:23,919 --> 00:26:22,340
building or elsewhere around the center

756
00:26:25,539 --> 00:26:23,929
that don't typically get to interact

757
00:26:27,820 --> 00:26:25,549
with the vehicles in it that makes it a

758
00:26:30,070 --> 00:26:27,830
very special day for them so we've gone

759
00:26:31,899 --> 00:26:30,080
quite the extra mile to make sure that

760
00:26:38,200 --> 00:26:31,909
that people are able to celebrate this

761
00:26:40,810 --> 00:26:38,210
fantastic machine todd halverson Florida

762
00:26:44,039 --> 00:26:40,820
today from Mike Leinbach Charlie Bolden

763
00:26:46,630 --> 00:26:44,049

at the National Press Club last Friday

764

00:26:49,840 --> 00:26:46,640

hinted at the possibility that

765

00:26:51,880 --> 00:26:49,850

commercial companies may be taking up

766

00:26:54,730 --> 00:26:51,890

residence in the orbiter processing

767

00:26:56,950 --> 00:26:54,740

facility bays and I'm wondering what

768

00:27:00,299 --> 00:26:56,960

your thoughts are about the facilities

769

00:27:03,580 --> 00:27:00,309

here and their potential utilizations by

770

00:27:06,279 --> 00:27:03,590

next-generation spacious well see there

771

00:27:08,529 --> 00:27:06,289

been no no deals cut yet for any of our

772

00:27:10,149 --> 00:27:08,539

facilities there are negotiations going

773

00:27:13,120 --> 00:27:10,159

on with some companies that I'm not at

774

00:27:15,549 --> 00:27:13,130

liberty to address personally I'd love

775

00:27:16,990 --> 00:27:15,559

to see the facilities used the worst

776

00:27:19,149 --> 00:27:17,000

thing you can do with a facility like

777

00:27:21,490 --> 00:27:19,159

the OPF or the VAB or a launch pad is to

778

00:27:24,190 --> 00:27:21,500

leave it empty and unoccupied and unused

779

00:27:25,810 --> 00:27:24,200

and so if we can attract other customers

780

00:27:27,279 --> 00:27:25,820

there I'd be the first one to go up

781

00:27:29,710 --> 00:27:27,289

there and help them in and cut the

782

00:27:32,440 --> 00:27:29,720

ribbon because I think it's a capability

783

00:27:33,880 --> 00:27:32,450

that this country has that is going to

784

00:27:36,700 --> 00:27:33,890

transition from the government shuttle

785

00:27:38,350 --> 00:27:36,710

program to potentially and hopefully

786

00:27:40,450 --> 00:27:38,360

other users and and so I'll be the first

787

00:27:45,159 --> 00:27:40,460

one to welcome them here and help them

788

00:27:45,789 --> 00:27:45,169

in any way I can okay if we can come

789

00:27:51,490 --> 00:27:45,799

over here please

790

00:27:53,980 --> 00:27:51,500

- Ken Ken Kramer for space flight

791

00:27:56,529 --> 00:27:53,990

magazine question for both Mike's first

792

00:27:58,720 --> 00:27:56,539

Mike Moses is there any update on the on

793

00:28:00,970 --> 00:27:58,730

the valve leak finding a root cause you

794

00:28:02,889 --> 00:28:00,980

have only that very small particle and

795

00:28:04,180 --> 00:28:02,899

for Mike Leinbach and maybe you answer

796

00:28:05,980 --> 00:28:04,190

this already but I think at the last

797

00:28:08,080 --> 00:28:05,990

conference you said you were gonna go

798

00:28:09,279 --> 00:28:08,090

yourself out to the pad and think about

799

00:28:10,750 --> 00:28:09,289

it and consider and I wonder if you

800

00:28:13,720 --> 00:28:10,760

could tell us a little bit about your

801
00:28:15,789 --> 00:28:13,730
feelings there thanks C on the valve no

802
00:28:18,279 --> 00:28:15,799
no updates they found that one piece of

803
00:28:20,529 --> 00:28:18,289
debris not enough to call it an actual

804
00:28:22,990 --> 00:28:20,539
root cause but it is a most probable so

805
00:28:24,639 --> 00:28:23,000
no update on that the valve replacement

806
00:28:26,590 --> 00:28:24,649
has passed all its leak checks and we

807
00:28:28,360 --> 00:28:26,600
did our flight readiness test and that

808
00:28:29,710 --> 00:28:28,370
all passed as well so we expect wearing

809
00:28:32,320 --> 00:28:29,720
a really good shape on the on the valve

810
00:28:34,120 --> 00:28:32,330
replacement on the main engine C and I

811
00:28:35,890 --> 00:28:34,130
had a chance to go out to to the pad to

812
00:28:38,740 --> 00:28:35,900
look at the last one last time in the

813
00:28:41,710 --> 00:28:38,750

and it was it was kind of emotional you

814

00:28:43,930 --> 00:28:41,720

know I personally my story I applied to

815

00:28:47,500 --> 00:28:43,940

NASA in 84 after President Reagan

816

00:28:50,410 --> 00:28:47,510

proposed the first permanently manned

817

00:28:52,930 --> 00:28:50,420

space station and so I've been very very

818

00:28:54,640 --> 00:28:52,940

lucky in my career I looked at some of

819

00:28:56,620 --> 00:28:54,650

the structures at the launch pad that I

820

00:28:58,650 --> 00:28:56,630

worked on when I first got hired and as

821

00:29:02,230 --> 00:28:58,660

a structural engineer at the launch pad

822

00:29:03,640 --> 00:29:02,240

and of course the vehicle so I've been

823

00:29:05,140 --> 00:29:03,650

one of the luckiest guys in this in the

824

00:29:07,660 --> 00:29:05,150

world and and I took the opportunity to

825

00:29:09,940 --> 00:29:07,670

go out by myself and just spend a couple

826
00:29:13,570 --> 00:29:09,950
hours and look around and and feel good

827
00:29:17,140 --> 00:29:13,580
about things okay over here on the wall

828
00:29:19,450 --> 00:29:17,150
please yes good morning honored to be

829
00:29:23,950 --> 00:29:19,460
here met Pavley rich from the radio

830
00:29:27,580 --> 00:29:23,960
network New Zealand for whoever wants to

831
00:29:30,070 --> 00:29:27,590
answer this the lifelong inspiration

832
00:29:33,400 --> 00:29:30,080
that this program is provided as one of

833
00:29:35,860 --> 00:29:33,410
the reasons that I'm here today to

834
00:29:37,299 --> 00:29:35,870
anybody who wants to give an anecdote

835
00:29:40,049 --> 00:29:37,309
have you received any international

836
00:29:42,250 --> 00:29:40,059
correspondence of any great measure

837
00:29:44,500 --> 00:29:42,260
letting you know how much this has meant

838
00:29:47,850 --> 00:29:44,510

to people and is that do you think that

839

00:29:50,560 --> 00:29:47,860

will continue let's see I've gotten

840

00:29:52,299 --> 00:29:50,570

quite a few things both internationally

841

00:29:54,280 --> 00:29:52,309

and nationally that same thing it's a

842

00:29:56,650 --> 00:29:54,290

it's a it's amazing how it's it's not

843

00:29:58,180 --> 00:29:56,660

just a it's not the American space

844

00:30:00,340 --> 00:29:58,190

shuttle it's a space shuttle that goes

845

00:30:03,040 --> 00:30:00,350

into orbit and it's it's orbiting earth

846

00:30:04,720 --> 00:30:03,050

and and and it's kind of a unique thing

847

00:30:06,040 --> 00:30:04,730

that it gives you a lot of pride in what

848

00:30:09,820 --> 00:30:06,050

you're doing that that you're able to

849

00:30:12,850 --> 00:30:09,830

help help inspire folks that way and so

850

00:30:15,520 --> 00:30:12,860

yeah gotten a fair bit of congratulatory

851
00:30:18,040 --> 00:30:15,530
and good luck messages nothing that I

852
00:30:20,560 --> 00:30:18,050
would call a remarkable or out of family

853
00:30:22,870 --> 00:30:20,570
but but I was very happy to get them and

854
00:30:23,830 --> 00:30:22,880
and very much appreciate the support you

855
00:30:26,230 --> 00:30:23,840
know it's one of those things you look

856
00:30:27,430 --> 00:30:26,240
back and it is that inspiration it's if

857
00:30:32,460 --> 00:30:27,440
it's why you're here today it's most

858
00:30:40,210 --> 00:30:37,690
James you have a follow-up James Dean

859
00:30:42,450 --> 00:30:40,220
floor today Mike Leinbach what do you

860
00:30:44,890 --> 00:30:42,460
think is going to be kind of the image

861
00:30:46,090 --> 00:30:44,900
that you'll hold in your memory of the

862
00:30:48,490 --> 00:30:46,100
spinal launch but you've seen so many

863
00:30:51,100 --> 00:30:48,500

launches each one special in its own way

864

00:30:52,120 --> 00:30:51,110

I guess but you know this is it what do

865

00:30:55,390 --> 00:30:52,130

you think it's going to be the lasting

866

00:30:57,520 --> 00:30:55,400

lasting impression whether it's engine

867

00:31:00,790 --> 00:30:57,530

start or clearing the tower somewhere

868

00:31:02,560 --> 00:31:00,800

from there well I hope it's not like the

869

00:31:11,680 --> 00:31:02,570

last launch where he only saw it for 22

870

00:31:14,740 --> 00:31:11,690

seconds Kathy so I'm hoping she's really

871

00:31:16,300 --> 00:31:14,750

blowing this forecast big-time and and

872

00:31:17,620 --> 00:31:16,310

we'll have a nice clear day but that

873

00:31:21,070 --> 00:31:17,630

doesn't seem like that's in the cards

874

00:31:23,860 --> 00:31:21,080

but yeah I don't know it's going to be

875

00:31:25,690 --> 00:31:23,870

it's going to be a an emotional day when

876

00:31:28,510 --> 00:31:25,700

it's all over we'll say a few speeches

877

00:31:30,280 --> 00:31:28,520

in the firing room and and recognize the

878

00:31:33,700 --> 00:31:30,290

contribution of the team and some

879

00:31:35,080 --> 00:31:33,710

special people I suspect and and then go

880

00:31:38,350 --> 00:31:35,090

have beans and cornbread for the last

881

00:31:39,910 --> 00:31:38,360

time and then yeah we the team's gonna

882

00:31:41,260 --> 00:31:39,920

do the same thing we always do to is not

883

00:31:43,930 --> 00:31:41,270

loose focus that it doesn't end until

884

00:31:45,730 --> 00:31:43,940

landing and so we're gonna stay sharpen

885

00:31:47,140 --> 00:31:45,740

and and pay attention to what we need to

886

00:31:48,970 --> 00:31:47,150

like Mike said the team will go out and

887

00:31:50,080 --> 00:31:48,980

do its normal pads safing that we can

888

00:31:51,730 --> 00:31:50,090

find stuff there that might be an

889

00:31:52,570 --> 00:31:51,740

indication of a problem that we we want

890

00:31:54,310 --> 00:31:52,580

to investigate further

891

00:31:56,140 --> 00:31:54,320

we'll get the Boosters back and get them

892

00:31:58,120 --> 00:31:56,150

into Harbor so a lot of the standard

893

00:31:59,950 --> 00:31:58,130

stuff will happen and so yeah the

894

00:32:01,360 --> 00:31:59,960

takeaways launch is going to be a memory

895

00:32:02,650 --> 00:32:01,370

but it's it's the act of the entire

896

00:32:03,790 --> 00:32:02,660

mission I think that at the end of it

897

00:32:07,660 --> 00:32:03,800

it's just going to be a conglomerate

898

00:32:08,200 --> 00:32:07,670

memory of the last I hear in the back

899

00:32:11,140 --> 00:32:08,210

please

900

00:32:13,330 --> 00:32:11,150

Oh Keith cowling NASA watch comm two

901
00:32:15,190 --> 00:32:13,340
questions for Mike Leinbach first of all

902
00:32:16,570 --> 00:32:15,200
just playing on the issue of keeping

903
00:32:18,700 --> 00:32:16,580
things shut already does that mean

904
00:32:21,760 --> 00:32:18,710
driving crawlers around opening doors

905
00:32:23,260 --> 00:32:21,770
using hoists is this and just a wag as

906
00:32:24,730 --> 00:32:23,270
to what you think that is in terms of

907
00:32:27,340 --> 00:32:24,740
how many people and how long that'll go

908
00:32:28,900 --> 00:32:27,350
on and second question you're the sort

909
00:32:30,430 --> 00:32:28,910
of guy that always struck me is just

910
00:32:32,920 --> 00:32:30,440
going to work and doing his job and

911
00:32:35,260 --> 00:32:32,930
normally would never deter from you know

912
00:32:37,000 --> 00:32:35,270
where I'm going from saying what you

913
00:32:38,470 --> 00:32:37,010

mean even though you'd like to and you

914

00:32:40,390 --> 00:32:38,480

did the about a week and a half two

915

00:32:41,620 --> 00:32:40,400

weeks ago and a lot of people heard

916

00:32:43,580 --> 00:32:41,630

about it and I've heard a lot of four

917

00:32:45,510 --> 00:32:43,590

interesting comments back

918

00:32:47,100 --> 00:32:45,520

particulars of what you set aside what

919

00:32:48,660 --> 00:32:47,110

was it like what are your troops say to

920

00:32:49,950 --> 00:32:48,670

you once you you know finally said you

921

00:32:51,720 --> 00:32:49,960

know this is what I think it must have

922

00:32:54,390 --> 00:32:51,730

been little unusual for you to be in

923

00:32:57,060 --> 00:32:54,400

that situation let's say first question

924

00:32:58,770 --> 00:32:57,070

we will have a certain amount of

925

00:33:01,919 --> 00:32:58,780

workforce here to keep the crawlers

926
00:33:03,630 --> 00:33:01,929
running just as you say we're literally

927
00:33:05,880 --> 00:33:03,640
going through that assessment right now

928
00:33:07,290 --> 00:33:05,890
the first the first time we went through

929
00:33:08,730 --> 00:33:07,300
that assessment I think we're a bit low

930
00:33:11,250 --> 00:33:08,740
on the number of people who really

931
00:33:12,600 --> 00:33:11,260
thought we needed and it's everything

932
00:33:14,310 --> 00:33:12,610
you just mentioned it's the doors on the

933
00:33:16,200 --> 00:33:14,320
VA it's the cranes it's the crawlers

934
00:33:18,090 --> 00:33:16,210
it's the it's all the facilities air

935
00:33:19,710 --> 00:33:18,100
conditioning all that stuff and so we're

936
00:33:21,900 --> 00:33:19,720
going through a reassessment there of

937
00:33:24,000 --> 00:33:21,910
that and may come out with a bit more

938
00:33:25,260 --> 00:33:24,010

workforce than we originally thought but

939

00:33:28,620 --> 00:33:25,270

it's not going to be a heck of a lot

940

00:33:30,780 --> 00:33:28,630

more in those days those comments I made

941

00:33:33,120 --> 00:33:30,790

on on that day of that launch countdown

942

00:33:34,650 --> 00:33:33,130

Sam you know I've been a member of the

943

00:33:37,919 --> 00:33:34,660

launch team and one capacity or another

944

00:33:40,049 --> 00:33:37,929

for 22 years the last 11 of which is a

945

00:33:41,549 --> 00:33:40,059

launch director and those comments that

946

00:33:44,640 --> 00:33:41,559

day were meant to be private between me

947

00:33:47,310 --> 00:33:44,650

and my launch team and so they were they

948

00:33:53,190 --> 00:33:47,320

were they were made and my team

949

00:33:55,590 --> 00:33:53,200

appreciated them dan dan billow from w e

950

00:33:57,180 --> 00:33:55,600

sh t V from Mike Moses we heard a little

951
00:33:59,340 --> 00:33:57,190
bit yesterday in the countdown status

952
00:34:01,260 --> 00:33:59,350
briefing about picking the best two out

953
00:34:03,960 --> 00:34:01,270
of three days Friday Saturday and Sunday

954
00:34:06,150 --> 00:34:03,970
would you discuss your philosophy of

955
00:34:08,159 --> 00:34:06,160
doing that if that's what you're doing

956
00:34:11,970 --> 00:34:08,169
and aren't Saturday and Sunday the two

957
00:34:14,399 --> 00:34:11,980
best days yeah so the problem is no

958
00:34:15,690 --> 00:34:14,409
forecast is created equal every every

959
00:34:17,340 --> 00:34:15,700
forecast is a little different and like

960
00:34:20,760 --> 00:34:17,350
Mike said one of the big things we do

961
00:34:23,550 --> 00:34:20,770
between the I- three-day forecast and

962
00:34:26,010 --> 00:34:23,560
the tanking day forecast is look at how

963
00:34:27,270 --> 00:34:26,020

that forecasts stayed accurate and and

964

00:34:29,070 --> 00:34:27,280

these are the trends that were

965

00:34:30,690 --> 00:34:29,080

predicting actually showing up is the

966

00:34:32,430 --> 00:34:30,700

pattern each day what we think it is or

967

00:34:34,830 --> 00:34:32,440

are there some unusual things coming

968

00:34:36,690 --> 00:34:34,840

back and and cathy has an unbelievably

969

00:34:39,149 --> 00:34:36,700

tough job to forecast the weather and

970

00:34:41,250 --> 00:34:39,159

and the weather is not you know under

971

00:34:44,639 --> 00:34:41,260

her control on much as we'd like it to

972

00:34:46,770 --> 00:34:44,649

be and so so it just comes down to

973

00:34:48,930 --> 00:34:46,780

evaluating how much do you put faith in

974

00:34:50,730 --> 00:34:48,940

that forecast based on the opportunities

975

00:34:52,710 --> 00:34:50,740

you have at the end of the day

976

00:34:55,230 --> 00:34:52,720

ultimately there is no harm in not

977

00:34:56,250 --> 00:34:55,240

launching in front of this Delta and if

978

00:34:56,790 --> 00:34:56,260

we have to go to the other side of it

979

00:34:58,770 --> 00:34:56,800

will go to the

980

00:35:00,930 --> 00:34:58,780

side of it it has impacts it has

981

00:35:02,250 --> 00:35:00,940

rescheduling problems it has a whole

982

00:35:04,170 --> 00:35:02,260

bunch of things we have to do but

983

00:35:06,690 --> 00:35:04,180

there's no safety risk in moving to the

984

00:35:08,310 --> 00:35:06,700

other side of that Delta so picking the

985

00:35:09,930 --> 00:35:08,320

best two out of three it's not like I'd

986

00:35:11,760 --> 00:35:09,940

say last chance I have and I'll never

987

00:35:14,430 --> 00:35:11,770

try it again and so I'm not letting that

988

00:35:16,200 --> 00:35:14,440

factoring in too much but literally it

989

00:35:17,400 --> 00:35:16,210

comes down to playing the what other

990

00:35:19,830 --> 00:35:17,410

factors are there how well is that

991

00:35:21,120 --> 00:35:19,840

forecast holding you know not to pick

992

00:35:22,680 --> 00:35:21,130

apart the forecast but if this is

993

00:35:25,380 --> 00:35:22,690

actually isn't a bad one if it's just

994

00:35:26,850 --> 00:35:25,390

cumulus clouds and rain showers as long

995

00:35:28,050 --> 00:35:26,860

as we get a hole over the pad that means

996

00:35:29,430 --> 00:35:28,060

we're not gonna fly through any and

997

00:35:31,080 --> 00:35:29,440

there's nothing within the twenty mile

998

00:35:33,150 --> 00:35:31,090

circle headed towards the pad that'll be

999

00:35:34,500 --> 00:35:33,160

a go day for us and it could be pouring

1000

00:35:35,880 --> 00:35:34,510

rain everywhere else in the county and

1001
00:35:37,740 --> 00:35:35,890
if we get that hole in the right spot

1002
00:35:39,540 --> 00:35:37,750
the right time we can go and so from

1003
00:35:42,150 --> 00:35:39,550
that standpoint right now I'm feeling

1004
00:35:44,250 --> 00:35:42,160
pretty good about trying Friday but

1005
00:35:45,690 --> 00:35:44,260
we're not at Friday yet so I'm not gonna

1006
00:35:47,700 --> 00:35:45,700
commit to anything until we get to

1007
00:35:48,870 --> 00:35:47,710
Friday and even then we got 12 more

1008
00:35:52,020 --> 00:35:48,880
hours before we actually have to commit

1009
00:35:53,970 --> 00:35:52,030
so it's a tough job and there's a lot of

1010
00:35:55,220 --> 00:35:53,980
things that make it seem hard it kind of

1011
00:35:57,300 --> 00:35:55,230
actually blows down to be pretty easy

1012
00:35:59,000 --> 00:35:57,310
like I said the only way to make sure we

1013
00:36:00,690 --> 00:35:59,010

don't launch that day is to not try

1014

00:36:06,540 --> 00:36:00,700

doesn't mean I'm just going to try

1015

00:36:08,730 --> 00:36:06,550

willy-nilly so can you thank Ken Kramer

1016

00:36:11,270 --> 00:36:08,740

Space Flight magazine I wonder if there

1017

00:36:13,890 --> 00:36:11,280

is any chance during the spacewalk that

1018

00:36:16,860 --> 00:36:13,900

the astronauts would use this fisheye

1019

00:36:18,930 --> 00:36:16,870

lens to get a picture of Atlantis on the

1020

00:36:20,730 --> 00:36:18,940

last flight and if you could both talk

1021

00:36:22,680 --> 00:36:20,740

about a little bit destinations where

1022

00:36:25,650 --> 00:36:22,690

you would like to go in the future

1023

00:36:26,820 --> 00:36:25,660

Thanks let's see the I don't know if

1024

00:36:29,220 --> 00:36:26,830

they're going to be taking that camera

1025

00:36:30,360 --> 00:36:29,230

out based on where they're going on the

1026

00:36:32,130 --> 00:36:30,370

truss I'm not sure we're headed out to

1027

00:36:34,260 --> 00:36:32,140

the ends anymore so we we knew we were

1028

00:36:35,580 --> 00:36:34,270

doing that on that that mission and so

1029

00:36:36,690 --> 00:36:35,590

that's why we took that lens along with

1030

00:36:38,340 --> 00:36:36,700

this we were gonna be at the top of the

1031

00:36:40,020 --> 00:36:38,350

truss looking down so I don't know

1032

00:36:42,270 --> 00:36:40,030

specifically if they plan on the special

1033

00:36:44,610 --> 00:36:42,280

photo ops this is the station crew doing

1034

00:36:46,890 --> 00:36:44,620

the e V a with their gear so I'm not

1035

00:36:48,120 --> 00:36:46,900

sure exactly what they have planned as

1036

00:36:50,220 --> 00:36:48,130

far as destinations

1037

00:36:52,770 --> 00:36:50,230

in the very short term I'm looking

1038

00:36:54,540 --> 00:36:52,780

forward to a vacation in the long term

1039

00:36:55,680 --> 00:36:54,550

from from an agency you mean where the

1040

00:36:59,130 --> 00:36:55,690

agency is going to go is the destination

1041

00:37:00,570 --> 00:36:59,140

yeah to me the path were on is is is

1042

00:37:02,190 --> 00:37:00,580

probably the right one you got to take

1043

00:37:04,290 --> 00:37:02,200

it in steps and bite off as you go you

1044

00:37:06,480 --> 00:37:04,300

got to learn to walk before you run

1045

00:37:08,580 --> 00:37:06,490

going straight to Mars is a massive

1046

00:37:09,630 --> 00:37:08,590

challenge you got to learn what you're

1047

00:37:10,770 --> 00:37:09,640

doing is you get there the station is a

1048

00:37:12,900 --> 00:37:10,780

great test bed for that

1049

00:37:15,270 --> 00:37:12,910

a perfect example is we have some really

1050

00:37:16,770 --> 00:37:15,280

good robust life control our

1051
00:37:18,600 --> 00:37:16,780
life-support systems up on station both

1052
00:37:20,130 --> 00:37:18,610
the Russian and the American versions

1053
00:37:22,110 --> 00:37:20,140
but if you look at them they require

1054
00:37:25,170 --> 00:37:22,120
fairly constant maintenance and fairly

1055
00:37:26,880 --> 00:37:25,180
often need to need parts sent back up

1056
00:37:28,860 --> 00:37:26,890
and you couldn't take that system to

1057
00:37:31,470 --> 00:37:28,870
Mars as is and and not have to have a

1058
00:37:33,540 --> 00:37:31,480
tractor trailer full of parts falling on

1059
00:37:34,830 --> 00:37:33,550
behind you so we have a still a lot to

1060
00:37:36,420 --> 00:37:34,840
learn before we get a life support

1061
00:37:38,400 --> 00:37:36,430
system capable of taking us all the way

1062
00:37:40,530 --> 00:37:38,410
to Mars without a lot of maintenance and

1063
00:37:42,930 --> 00:37:40,540

that's just one example the propulsion

1064

00:37:46,080 --> 00:37:42,940

the the habitats the e VA suits all that

1065

00:37:47,310 --> 00:37:46,090

has to evolve so as you go you can you

1066

00:37:48,360 --> 00:37:47,320

can do that but kind of like we did in

1067

00:37:49,710 --> 00:37:48,370

the spirit didn't you back in the Apollo

1068

00:37:51,660 --> 00:37:49,720

days you don't have to have everything

1069

00:37:52,950 --> 00:37:51,670

before you go out into deep space you

1070

00:37:54,570 --> 00:37:52,960

could go do a flyby you could do a

1071

00:37:57,390 --> 00:37:54,580

near-earth object

1072

00:37:58,890 --> 00:37:57,400

mission we joke that sometimes the moon

1073

00:38:00,510 --> 00:37:58,900

is a four-letter word at NASA but the

1074

00:38:02,370 --> 00:38:00,520

moons and near-earth object so you know

1075

00:38:04,410 --> 00:38:02,380

it all depends on what objective you're

1076

00:38:06,660 --> 00:38:04,420

really trying to satisfy that day and so

1077

00:38:08,160 --> 00:38:06,670

to me personally I think the destination

1078

00:38:10,350 --> 00:38:08,170

isn't as important as much it is the

1079

00:38:11,760 --> 00:38:10,360

objective of the next step what

1080

00:38:13,290 --> 00:38:11,770

technology do we need to prove that

1081

00:38:14,820 --> 00:38:13,300

we're ready to go to the next step let's

1082

00:38:16,470 --> 00:38:14,830

go demonstrate it test it out and then

1083

00:38:18,270 --> 00:38:16,480

go for the next place beyond that

1084

00:38:20,310 --> 00:38:18,280

otherwise you get a little too focused

1085

00:38:21,780 --> 00:38:20,320

on the make everything work offer one

1086

00:38:23,460 --> 00:38:21,790

thing and you kind of do lose sight of

1087

00:38:24,690 --> 00:38:23,470

the well we can take little steps and

1088

00:38:26,190 --> 00:38:24,700

maybe go some different directions and

1089

00:38:27,630 --> 00:38:26,200

still accomplish a whole lot we don't

1090

00:38:29,130 --> 00:38:27,640

have to wait five years before we launch

1091

00:38:30,990 --> 00:38:29,140

we might be able to do a couple launches

1092

00:38:32,070 --> 00:38:31,000

between now and then and and the agency

1093

00:38:33,570 --> 00:38:32,080

is most definitely thinking about that

1094

00:38:35,070 --> 00:38:33,580

you see that in our we're not picking a

1095

00:38:37,590 --> 00:38:35,080

specific destination we're talking about

1096

00:38:39,810 --> 00:38:37,600

a myriad of destinations and personally

1097

00:38:41,820 --> 00:38:39,820

I think that's not a bad idea it lacks a

1098

00:38:44,010 --> 00:38:41,830

little bit of the unifying focus of a

1099

00:38:45,960 --> 00:38:44,020

mission we do ultimately have that focus

1100

00:38:47,160 --> 00:38:45,970

it's Mars it's just gonna take us a lot

1101
00:38:49,440 --> 00:38:47,170
to get there and we don't want to run

1102
00:38:52,110 --> 00:38:49,450
right to the finish line long-winded

1103
00:38:53,640 --> 00:38:52,120
speech I think from my perspective I

1104
00:38:57,090 --> 00:38:53,650
touched on a little bit in the last

1105
00:38:59,220 --> 00:38:57,100
press conference the shuttle program to

1106
00:39:01,110 --> 00:38:59,230
me was a was an evolutionary step off

1107
00:39:04,140 --> 00:39:01,120
for the planet and into and into the

1108
00:39:05,850 --> 00:39:04,150
heavens and we have learned to live and

1109
00:39:07,140 --> 00:39:05,860
work in low-earth orbit and we've done

1110
00:39:09,300 --> 00:39:07,150
that pretty well have we learned

1111
00:39:10,770 --> 00:39:09,310
everything of course not not yet but it

1112
00:39:13,200 --> 00:39:10,780
was it was a good step it's a good step

1113
00:39:14,790 --> 00:39:13,210

along the way and and I think I think we

1114

00:39:17,520 --> 00:39:14,800

as a species need to be thinking about

1115

00:39:19,440 --> 00:39:17,530

living off this planet long term very

1116

00:39:22,200 --> 00:39:19,450

long term and

1117

00:39:25,440 --> 00:39:22,210

to me that autumn to me Mike Leinbach

1118

00:39:27,690 --> 00:39:25,450

that ought to be the mission for us as a

1119

00:39:30,210 --> 00:39:27,700

species to think about living off this

1120

00:39:31,800 --> 00:39:30,220

planet and then what'd he do to do that

1121

00:39:33,600 --> 00:39:31,810

well we've learned to live and operate

1122

00:39:35,640 --> 00:39:33,610

in low Earth orbit we need to learn to

1123

00:39:38,010 --> 00:39:35,650

live on another body we've touched the

1124

00:39:40,980 --> 00:39:38,020

moon I believe personally that the moon

1125

00:39:43,860 --> 00:39:40,990

is a good a good destination to go learn

1126

00:39:46,320 --> 00:39:43,870

how to live on another body get that

1127

00:39:48,510 --> 00:39:46,330

experience behind us so we can take

1128

00:39:52,020 --> 00:39:48,520

those next logical steps away from from

1129

00:39:54,930 --> 00:39:52,030

Mother Earth and live beyond what we've

1130

00:39:56,760 --> 00:39:54,940

known all of our all of our lives and so

1131

00:39:58,980 --> 00:39:56,770

an another evolutionary step I believe

1132

00:40:01,020 --> 00:39:58,990

is the way we should go I'm not the

1133

00:40:06,900 --> 00:40:01,030

policy maker on the implementer and so

1134

00:40:09,210 --> 00:40:06,910

if I need to be told what to do bill two

1135

00:40:10,740 --> 00:40:09,220

more quick ones for Mike Leinbach if you

1136

00:40:12,030 --> 00:40:10,750

guys got any update on the crowd

1137

00:40:13,770 --> 00:40:12,040

estimates that they're saying is it

1138

00:40:15,960 --> 00:40:13,780

still 500 to 750 that they're talking

1139

00:40:18,030 --> 00:40:15,970

about and is there anything in this flow

1140

00:40:19,800 --> 00:40:18,040

that you're not doing because it's the

1141

00:40:21,840 --> 00:40:19,810

last flight or is this pretty much an

1142

00:40:24,240 --> 00:40:21,850

OPS normal all the way through to post

1143

00:40:26,310 --> 00:40:24,250

landing let's see anything we're not

1144

00:40:27,780 --> 00:40:26,320

done I can't think of anything we're not

1145

00:40:30,420 --> 00:40:27,790

doing let me think about that well

1146

00:40:31,890 --> 00:40:30,430

answer yeah the estimate is still five

1147

00:40:34,110 --> 00:40:31,900

hundred thousand seven hundred fifty

1148

00:40:36,000 --> 00:40:34,120

thousand for Friday if if for some

1149

00:40:39,300 --> 00:40:36,010

reason Cathy makes a stay on the ground

1150

00:40:43,140 --> 00:40:39,310

from a weather perspective Friday you

1151

00:40:45,930 --> 00:40:43,150

didn't laugh then I think over the

1152

00:40:47,730 --> 00:40:45,940

weekend will probably rise a bit in fact

1153

00:40:49,530 --> 00:40:47,740

our security forces are saying it may go

1154

00:40:52,050 --> 00:40:49,540

up a little bit over the weekend but

1155

00:40:54,330 --> 00:40:52,060

it's going to be jam-packed regardless

1156

00:40:57,210 --> 00:40:54,340

of what day we launch anything we

1157

00:41:02,250 --> 00:40:57,220

haven't done I don't think I can't think

1158

00:41:03,780 --> 00:41:02,260

of anything Tom Abrams KTRK in Houston

1159

00:41:06,150 --> 00:41:03,790

what does it say to you that so many

1160

00:41:10,710 --> 00:41:06,160

people would make their way here to

1161

00:41:13,590 --> 00:41:10,720

watch that final launch pride in the

1162

00:41:16,280 --> 00:41:13,600

program pride in America I'll be honest

1163

00:41:19,890 --> 00:41:16,290

I wish it had picked up years ago

1164

00:41:23,400 --> 00:41:19,900

because I think we've lost the interest

1165

00:41:25,470 --> 00:41:23,410

of some of the American people and and

1166

00:41:27,540 --> 00:41:25,480

so when you see the last one you want to

1167

00:41:30,640 --> 00:41:27,550

race down to Florida and see it so you

1168

00:41:33,489 --> 00:41:30,650

can have check that off your bucket list

1169

00:41:34,989 --> 00:41:33,499

and that's good that's fine I wish we

1170

00:41:36,400 --> 00:41:34,999

had had been able to maintain the

1171

00:41:38,620 --> 00:41:36,410

interest of the American people a bit

1172

00:41:40,989 --> 00:41:38,630

better than we had in over the life of

1173

00:41:42,670 --> 00:41:40,999

the program not that we haven't done

1174

00:41:46,359 --> 00:41:42,680

that I just don't think we've done it as

1175

00:41:48,329 --> 00:41:46,369

as good as we could have okay we'll take

1176

00:41:52,239 --> 00:41:48,339

one more question for Irene please

1177

00:41:55,210 --> 00:41:52,249

thanks Irene Klotz with Reuters probably

1178

00:41:56,710 --> 00:41:55,220

from Mike Moses and this may actually be

1179

00:41:59,460 --> 00:41:56,720

more of a spacestation question but

1180

00:42:03,180 --> 00:41:59,470

perhaps you we would you know the answer

1181

00:42:08,650 --> 00:42:03,190

has NASA done any risk assessments on

1182

00:42:10,620 --> 00:42:08,660

kind of long-term problem I guess it's

1183

00:42:15,009 --> 00:42:10,630

just a long-term risk of space station

1184

00:42:17,640 --> 00:42:15,019

having just a single crew transportation

1185

00:42:19,989 --> 00:42:17,650

system for the foreseeable future I

1186

00:42:21,370 --> 00:42:19,999

don't know if they've specifically

1187

00:42:23,890 --> 00:42:21,380

looked at that we've been in the

1188

00:42:26,739 --> 00:42:23,900

situation before after Columbia we were

1189

00:42:28,839 --> 00:42:26,749

down to rely on just on the Soyuz and so

1190

00:42:30,730 --> 00:42:28,849

it's not an unexpected thing so the

1191

00:42:33,130 --> 00:42:30,740

reliability numbers of their rocket

1192

00:42:34,539 --> 00:42:33,140

system and their launch capabilities but

1193

00:42:36,400 --> 00:42:34,549

we're not down to a single system we're

1194

00:42:39,400 --> 00:42:36,410

down to a single system for crew but we

1195

00:42:41,440 --> 00:42:39,410

now have the ATV from the European Space

1196

00:42:44,259 --> 00:42:41,450

Agency in the HTV from the Japanese

1197

00:42:47,099 --> 00:42:44,269

Space Agency has resupply ships both are

1198

00:42:50,349 --> 00:42:47,109

doing fantastic and able to take up a

1199

00:42:51,849 --> 00:42:50,359

literally tons of cargo and so we're in

1200

00:42:53,109 --> 00:42:51,859

actually a much better situation than we

1201

00:42:54,089 --> 00:42:53,119

were back when we had that Columbia

1202

00:42:56,109 --> 00:42:54,099

stand down but from a crew perspective

1203

00:42:57,940 --> 00:42:56,119

yeah we are in that situation if you

1204

00:42:59,229 --> 00:42:57,950

think about it from a crew safety and

1205

00:43:01,299 --> 00:42:59,239

rescue standpoint we've always relied on

1206

00:43:03,460 --> 00:43:01,309

still use as our rescue vehicle to get

1207

00:43:04,839 --> 00:43:03,470

crews off of station and so I know

1208

00:43:06,069 --> 00:43:04,849

they've done that math I just I don't

1209

00:43:07,870 --> 00:43:06,079

know the specifics if they looked at

1210

00:43:11,079 --> 00:43:07,880

this time period and this exposure

1211

00:43:12,430 --> 00:43:11,089

period for what that means to them just

1212

00:43:14,979 --> 00:43:12,440

following up on that for a minute then

1213

00:43:16,690 --> 00:43:14,989

um if the station is as you all have

1214

00:43:18,430 --> 00:43:16,700

been saying the kind of the ultimate

1215

00:43:20,890 --> 00:43:18,440

crowning legacy of the shuttle program

1216

00:43:23,609 --> 00:43:20,900

do you think it's being left at risk

1217

00:43:27,579 --> 00:43:23,619

having only one way to get up there I

1218

00:43:30,519 --> 00:43:27,589

don't think it's at risk per se it's you

1219

00:43:35,680 --> 00:43:30,529

know obviously a better better plant

1220

00:43:37,239 --> 00:43:35,690

better tough word a a more robust plan

1221

00:43:38,950 --> 00:43:37,249

would have had redundancy built in a

1222

00:43:40,599 --> 00:43:38,960

follow-on ready to go before the first

1223

00:43:42,999 --> 00:43:40,609

one was retired and a stepping-stone

1224

00:43:44,200 --> 00:43:43,009

type of approach we just didn't get to

1225

00:43:47,470 --> 00:43:44,210

that so are we

1226

00:43:50,099 --> 00:43:47,480

anything at risk yeah probably but is it

1227

00:43:52,450 --> 00:43:50,109

unacceptable risk no I don't believe so

1228

00:43:54,579 --> 00:43:52,460

there's you know the Russian the Russian

1229

00:43:56,349 --> 00:43:54,589

system is unbelievably robust and like I

1230

00:43:58,210 --> 00:43:56,359

said our our international partners with

1231

00:43:59,589 --> 00:43:58,220

their resupply capability can can really

1232

00:44:02,680 --> 00:43:59,599

do a great job we're going to get our

1233

00:44:04,240 --> 00:44:02,690

commercial cargo resupply underway we're

1234

00:44:06,040 --> 00:44:04,250

talking about Commercial Crew resupply

1235

00:44:08,410 --> 00:44:06,050

and so all those things are going to

1236

00:44:10,210 --> 00:44:08,420

happen and so stations station is a

1237

00:44:12,040 --> 00:44:10,220

pretty good animal you look at its

1238

00:44:13,839 --> 00:44:12,050

reliability and its performance it's

1239

00:44:15,430 --> 00:44:13,849

doing way better than the numbers show

1240

00:44:17,079 --> 00:44:15,440

in terms of what maintenance it would

1241

00:44:19,359 --> 00:44:17,089

have required by now what what events

1242

00:44:21,370 --> 00:44:19,369

you mean by now you look at the Space

1243

00:44:23,559 --> 00:44:21,380

Shuttle and you kind of what you're

1244

00:44:26,290 --> 00:44:23,569

missing is that work platform that lets

1245

00:44:28,150 --> 00:44:26,300

you do the unexpected so it's got the

1246

00:44:29,920 --> 00:44:28,160

robot arm it's got the airlock it's got

1247

00:44:31,900 --> 00:44:29,930

a dedicated crew it's got a giant

1248

00:44:33,700 --> 00:44:31,910

payload Bay and so to handle those

1249

00:44:36,309 --> 00:44:33,710

unexpected things those unexpected

1250

00:44:37,750 --> 00:44:36,319

things are mostly all behind us assembly

1251
00:44:39,520 --> 00:44:37,760
was the big unexpected make sure

1252
00:44:41,440 --> 00:44:39,530
everything fits together if it doesn't

1253
00:44:42,670 --> 00:44:41,450
you got the ability to then redo things

1254
00:44:43,870 --> 00:44:42,680
you got the ability to put that module

1255
00:44:45,400 --> 00:44:43,880
back in the shuttle payload Bay and

1256
00:44:46,990 --> 00:44:45,410
return it if you had to

1257
00:44:48,430 --> 00:44:47,000
now that assembly is over and we're more

1258
00:44:51,190 --> 00:44:48,440
in a maintenance utilization standpoint

1259
00:44:52,930 --> 00:44:51,200
a lot of those big unknowns are kind of

1260
00:44:54,250 --> 00:44:52,940
gone now it's just a keep operating kind

1261
00:44:55,510 --> 00:44:54,260
of thing and so you're able to go to a

1262
00:44:57,010 --> 00:44:55,520
little different model of operation

1263
00:44:58,900 --> 00:44:57,020

we're not having the shuttle around so

1264

00:45:03,150 --> 00:44:58,910

not as big a risk as it would have been

1265

00:45:06,730 --> 00:45:05,109

okay I think that's all for the

1266

00:45:08,170 --> 00:45:06,740

questions we have Jim did you have one

1267

00:45:09,910 --> 00:45:08,180

more follow up we'll take one more from

1268

00:45:12,370 --> 00:45:09,920

Jim follow-up and then we'll conclude

1269

00:45:14,650 --> 00:45:12,380

briefing Jim Siegel celebration

1270

00:45:18,250 --> 00:45:14,660

independent newspaper if there continues

1271

00:45:20,260 --> 00:45:18,260

to be unexpected delays weather weather

1272

00:45:21,849 --> 00:45:20,270

some other reason is there a point at

1273

00:45:26,680 --> 00:45:21,859

which you could run into a budget

1274

00:45:30,400 --> 00:45:26,690

problems or or is that a factor here no

1275

00:45:31,720 --> 00:45:30,410

so yeah there's no actual checkbook

1276

00:45:33,940 --> 00:45:31,730

that's gonna expire anything like that

1277

00:45:35,319 --> 00:45:33,950

so no we're we got the funding to do

1278

00:45:36,880 --> 00:45:35,329

what we need to for the launch window we

1279

00:45:38,079 --> 00:45:36,890

have like I said if we if we have to

1280

00:45:39,460 --> 00:45:38,089

move the other side of Delta that's not

1281

00:45:40,000 --> 00:45:39,470

there's nothing stopping us from doing

1282

00:45:43,960 --> 00:45:40,010

that

1283

00:45:45,039 --> 00:45:43,970

perspective it's exactly the right place

1284

00:45:46,900 --> 00:45:45,049

to have the launch team there's no

1285

00:45:49,120 --> 00:45:46,910

external pressures to worry about from

1286

00:45:52,390 --> 00:45:49,130

from a schedule standpoint

1287

00:45:54,880 --> 00:45:52,400

that will conclude today's sts-135

1288

00:45:57,490 --> 00:45:54,890

pre-launch news conference up next on

1289

00:45:59,380 --> 00:45:57,500

NASA television at 1:00 p.m. Eastern is

1290

00:46:01,749 --> 00:45:59,390

the International Space Station Science

1291

00:46:04,180 --> 00:46:01,759

and Technology news conference for more