
Facebook
Twitter
Google +
YouTube
iTunes
RSS

1
00:00:01,510 --> 00:00:05,050
you

2
00:00:08,869 --> 00:00:07,280
hi I'm Trent Prado public affairs

3
00:00:10,940 --> 00:00:08,879
officer with NASA's human exploration

4
00:00:12,650 --> 00:00:10,950
and operations mission directorate like

5
00:00:14,570 --> 00:00:12,660
to welcome you to the agency's Wallops

6
00:00:16,279 --> 00:00:14,580
Flight Facility in Virginia for today's

7
00:00:18,109 --> 00:00:16,289
news conference to discuss progress to

8
00:00:20,030 --> 00:00:18,119
date and some next steps in a number of

9
00:00:22,010 --> 00:00:20,040
spaceflight areas as we look forward to

10
00:00:24,140 --> 00:00:22,020
tomorrow's test launch the orbital

11
00:00:25,670 --> 00:00:24,150
science corporations Antares rocket for

12
00:00:27,320 --> 00:00:25,680
those joining us online you can find out

13
00:00:32,089 --> 00:00:27,330

more information about the test launch

14
00:00:33,380 --> 00:00:32,099
at WWDC gov / orbital and find all the

15
00:00:37,489 --> 00:00:33,390
ways to connect with us on social media

16
00:00:38,750 --> 00:00:37,499
go to ww NSA gov / connect as for the

17
00:00:40,549 --> 00:00:38,760
order of events today we have four

18
00:00:41,930 --> 00:00:40,559
speakers joining us each will provide

19
00:00:44,090 --> 00:00:41,940
brief remarks and then we'll open the

20
00:00:45,799 --> 00:00:44,100
floor the excuse me the floor and phone

21
00:00:47,389 --> 00:00:45,809
lines for questions and answers like to

22
00:00:49,819 --> 00:00:47,399
take a brief moment just to welcome and

23
00:00:52,160 --> 00:00:49,829
introduce the speakers first we have

24
00:00:54,770 --> 00:00:52,170
Phil McAllister NASA's director of

25
00:00:57,229 --> 00:00:54,780
commercial spaceflight development next

26
00:00:58,489 --> 00:00:57,239
Dale Nash executive director of the

27
00:01:01,329 --> 00:00:58,499
Virginia commercial spaceflight

28
00:01:03,169 --> 00:01:01,339
authority next Frank Culbertson

29
00:01:05,390 --> 00:01:03,179
executive vice president and general

30
00:01:08,359 --> 00:01:05,400
manager of orbitals advanced programs

31
00:01:10,399 --> 00:01:08,369
group and bill rebel director of NASA's

32
00:01:12,580 --> 00:01:10,409
Wallops Flight Facility and with that

33
00:01:15,709 --> 00:01:12,590
I'll hand off the discussion to fill

34
00:01:18,440 --> 00:01:15,719
thanks Trent I'm very very gratified to

35
00:01:20,330 --> 00:01:18,450
be here today remember when we first

36
00:01:23,359 --> 00:01:20,340
started this program over six years ago

37
00:01:26,480 --> 00:01:23,369
there was no launch pad no rocket and

38
00:01:29,389 --> 00:01:26,490

then to see the launch launch pad and

39
00:01:31,069 --> 00:01:29,399
the rocket today in the sunshine getting

40
00:01:33,590 --> 00:01:31,079
ready for its debut was very very

41
00:01:35,660 --> 00:01:33,600
gratifying and I want to congratulate

42
00:01:38,840 --> 00:01:35,670
Frank and the orbital team for doing a

43
00:01:41,120 --> 00:01:38,850
great job and and the other the other

44
00:01:42,919 --> 00:01:41,130
partners as part of this organization it

45
00:01:45,740 --> 00:01:42,929
was it was really a team effort really a

46
00:01:48,200 --> 00:01:45,750
good partnership on the part of orbital

47
00:01:49,999 --> 00:01:48,210
leading the leading the way as well as

48
00:01:51,969 --> 00:01:50,009
the mid-atlantic regional spaceport at

49
00:01:55,910 --> 00:01:51,979
the state of Virginia the authority

50
00:01:58,190 --> 00:01:55,920
Wallops and NASA all coming together to

51
00:02:00,499 --> 00:01:58,200
get another American space capability

52
00:02:02,270 --> 00:02:00,509
and that's what's truly gratifying a lot

53
00:02:04,520 --> 00:02:02,280
of people say that the American space

54
00:02:06,559 --> 00:02:04,530
program is in decline well you only have

55
00:02:09,249 --> 00:02:06,569
to go just a couple a couple miles down

56
00:02:11,810 --> 00:02:09,259
the road to see it on the rise literally

57
00:02:13,850 --> 00:02:11,820
on the pad and I am very much looking

58
00:02:15,460 --> 00:02:13,860
forward to the day where we have regular

59
00:02:17,560 --> 00:02:15,470
cargo resupply runs to the

60
00:02:19,030 --> 00:02:17,570
International Space Station hopefully

61
00:02:21,180 --> 00:02:19,040
we'll see that very soon so the space

62
00:02:25,030 --> 00:02:21,190
station can be fully outfitted and and

63
00:02:27,390 --> 00:02:25,040

productive as a National Lab and just to

64
00:02:29,620 --> 00:02:27,400
conclude I'd like to say that our

65
00:02:31,810 --> 00:02:29,630
accomplishments in space should not be

66
00:02:33,940 --> 00:02:31,820
limited by hardware it should only be

67
00:02:36,580 --> 00:02:33,950
limited by our aspirations in our will

68
00:02:38,740 --> 00:02:36,590
and this capability gives us gives us

69
00:02:40,450 --> 00:02:38,750
the hardware it allows us to take the

70
00:02:41,860 --> 00:02:40,460
next step in our space exploration

71
00:02:44,140 --> 00:02:41,870
program so that's another reason why I'm

72
00:02:46,120 --> 00:02:44,150
very excited for tomorrow regardless of

73
00:02:49,000 --> 00:02:46,130
whether it is a good day or bad day or

74
00:02:51,850 --> 00:02:49,010
something in between tomorrow again a

75
00:02:53,680 --> 00:02:51,860
real accomplishment a lot of challenges

76
00:02:55,600 --> 00:02:53,690
that got work through but the commitment

77
00:02:58,990 --> 00:02:55,610
of the partners to work through thats

78
00:03:00,930 --> 00:02:59,000
real testament so whatever happens good

79
00:03:05,440 --> 00:03:00,940
job to get us to where we are today

80
00:03:09,550 --> 00:03:05,450
that's it deal okay thanks Phillip first

81
00:03:12,880 --> 00:03:09,560
of all it's a we are very pleased at the

82
00:03:15,010 --> 00:03:12,890
state of Virginia in the Virginia

83
00:03:18,490 --> 00:03:15,020
commercial spaceflight Authority the

84
00:03:22,330 --> 00:03:18,500
owner and builder of the Mars pads here

85
00:03:24,280 --> 00:03:22,340
in particular Mars pad 0a we were

86
00:03:27,340 --> 00:03:24,290
pleased to be on the the NASA orbital

87
00:03:31,290 --> 00:03:27,350
team and very fortunate to have been

88
00:03:34,390 --> 00:03:31,300

selected we've gone through a long

89
00:03:37,660 --> 00:03:34,400
challenging process I had about five or

90
00:03:40,060 --> 00:03:37,670
six slides but somehow we hope it's the

91
00:03:43,720 --> 00:03:40,070
only snafu we have they didn't didn't

92
00:03:47,970 --> 00:03:43,730
make it onto it but a good a good snap

93
00:03:52,660 --> 00:03:47,980
shot of the pad had groundbreaking in

94
00:03:55,800 --> 00:03:52,670
June of 2009 we really started to do

95
00:04:00,550 --> 00:03:55,810
construction in the spring of 2010

96
00:04:02,650 --> 00:04:00,560
hundreds of pylons put in built the the

97
00:04:06,090 --> 00:04:02,660
pad up it was taking pretty good shape

98
00:04:11,530 --> 00:04:06,100
by the fall of 2010 the most of the

99
00:04:14,979 --> 00:04:11,540
infrastructure was in 2011 we we had a

100
00:04:17,409 --> 00:04:14,989
pad we were in the process from 2011 on

101
00:04:22,360 --> 00:04:17,419
through the end of 2011 through day

102
00:04:24,550 --> 00:04:22,370
through October of 2012 of putting all

103
00:04:27,020 --> 00:04:24,560
the subsystems in place a liquid fuel

104
00:04:29,640 --> 00:04:27,030
farm all the

105
00:04:33,000 --> 00:04:29,650
regulators all the things that go with

106
00:04:35,310 --> 00:04:33,010
it getting it tested out hooked it up on

107
00:04:37,320 --> 00:04:35,320
october or turned it over to orbital on

108
00:04:39,960 --> 00:04:37,330
october first shortly thereafter hooked

109
00:04:41,940 --> 00:04:39,970
up the test vehicle we went through a

110
00:04:43,830 --> 00:04:41,950
lot of systems tests and check out

111
00:04:45,960 --> 00:04:43,840
didn't always get them right the first

112
00:04:47,820 --> 00:04:45,970
time but each time we went through it we

113
00:04:50,430 --> 00:04:47,830

learn more we got better and better at

114
00:04:53,490 --> 00:04:50,440
it we wrote out hurricane sandy and we

115
00:04:56,280 --> 00:04:53,500
had a very successful hot fire on the

116
00:04:59,700 --> 00:04:56,290
22nd the pad came through looking

117
00:05:02,100 --> 00:04:59,710
remarkably well far better than I had

118
00:05:05,130 --> 00:05:02,110
expected we were able to turn that

119
00:05:08,190 --> 00:05:05,140
around quick we've got the the very

120
00:05:11,520 --> 00:05:08,200
beautiful Antares rocket out there and

121
00:05:13,620 --> 00:05:11,530
we are ready to go and very pleased very

122
00:05:17,240 --> 00:05:13,630
pleased at the partnership with with

123
00:05:20,280 --> 00:05:17,250
NASA and orbital Wallops in particular

124
00:05:23,010 --> 00:05:20,290
it's it's an excellent partnership that

125
00:05:25,410 --> 00:05:23,020
I think has reached this major milestone

126
00:05:28,470 --> 00:05:25,420
and we only expect to see it grow well

127
00:05:29,820 --> 00:05:28,480
beyond that thank you Frank thank you

128
00:05:31,830 --> 00:05:29,830
very much dealing good afternoon to

129
00:05:33,780 --> 00:05:31,840
everybody on behalf of mr. David

130
00:05:36,690 --> 00:05:33,790
Thompson and the entire orbital team I'd

131
00:05:38,700 --> 00:05:36,700
like to thank you for welcoming us here

132
00:05:41,580 --> 00:05:38,710
for this big event today also i'm happy

133
00:05:44,520 --> 00:05:41,590
to see so many people out to watch this

134
00:05:46,950 --> 00:05:44,530
this is a big event for the eastern

135
00:05:48,480 --> 00:05:46,960
shore for Wallops and and for everybody

136
00:05:50,100 --> 00:05:48,490
in the surrounding area but I think also

137
00:05:52,830 --> 00:05:50,110
for the country as I'll explain in a

138
00:05:55,350 --> 00:05:52,840

moment we've been working on this rocket

139
00:05:58,650 --> 00:05:55,360
for over six years and it was originally

140
00:06:00,630 --> 00:05:58,660
conceived to be a medium lift rocket to

141
00:06:03,240 --> 00:06:00,640
replace others that were being retired

142
00:06:05,550 --> 00:06:03,250
and then when the cots program came

143
00:06:08,490 --> 00:06:05,560
along it was a perfect fit and we were

144
00:06:10,380 --> 00:06:08,500
eventually selected to provide cots

145
00:06:11,970 --> 00:06:10,390
demonstration mission and then shortly

146
00:06:13,980 --> 00:06:11,980
thereafter selected as one of the

147
00:06:16,740 --> 00:06:13,990
awardees on the cargo resupply service

148
00:06:19,170 --> 00:06:16,750
which we will be executing following the

149
00:06:21,720 --> 00:06:19,180
first two tests and demonstration

150
00:06:24,150 --> 00:06:21,730
flights that's a real honor for us as a

151
00:06:27,210 --> 00:06:24,160
company and we understand how important

152
00:06:31,110 --> 00:06:27,220
that is is to the country the rocket

153
00:06:32,580 --> 00:06:31,120
itself as as you will see is about 130

154
00:06:34,950 --> 00:06:32,590
feet long it's sitting on the pad out

155
00:06:36,640 --> 00:06:34,960
there now ready to go it will be fueled

156
00:06:39,400 --> 00:06:36,650
tomorrow during the countdown

157
00:06:43,290 --> 00:06:39,410
and will lift off with approximately 750

158
00:06:46,240 --> 00:06:43,300
thousand pounds of thrust weighing about

159
00:06:47,950 --> 00:06:46,250
600,000 pounds so it'll it'll not race

160
00:06:49,390 --> 00:06:47,960
off the pad but it will accelerate very

161
00:06:51,370 --> 00:06:49,400
quickly once it gets going and it's

162
00:06:52,540 --> 00:06:51,380
going to be the biggest and loudest and

163
00:06:53,950 --> 00:06:52,550

brightest thing that's ever launched

164
00:06:56,920 --> 00:06:53,960
from Wallops i believe so it'll be

165
00:06:58,659 --> 00:06:56,930
visible up and down the coast but that

166
00:07:00,640 --> 00:06:58,669
will be the first of many we intend to

167
00:07:03,420 --> 00:07:00,650
continue launching out of here with the

168
00:07:05,980 --> 00:07:03,430
help of our partners on a regular basis

169
00:07:07,240 --> 00:07:05,990
this test flight of course is a test

170
00:07:10,120 --> 00:07:07,250
flight and I want to remind everybody

171
00:07:12,100 --> 00:07:10,130
that first word is test so if things

172
00:07:13,330 --> 00:07:12,110
don't go exactly as planned we will

173
00:07:16,779 --> 00:07:13,340
learn what we need to learn it will

174
00:07:19,570 --> 00:07:16,789
press on and continue to improve as we

175
00:07:21,730 --> 00:07:19,580
go forward the second flight will be a

176
00:07:23,290 --> 00:07:21,740
demonstration flight all the way to the

177
00:07:26,230 --> 00:07:23,300
International Space Station with a load

178
00:07:28,510 --> 00:07:26,240
of cargo in carried by the Cygnus

179
00:07:30,159 --> 00:07:28,520
spacecraft which as we speak is in the

180
00:07:32,560 --> 00:07:30,169
fueling facility here at Wallops Island

181
00:07:34,089 --> 00:07:32,570
getting ready to go and we'll be ready

182
00:07:36,430 --> 00:07:34,099
to be launched later this summer

183
00:07:38,080 --> 00:07:36,440
following the test flight once we have

184
00:07:40,240 --> 00:07:38,090
demonstrated with those two missions

185
00:07:41,469 --> 00:07:40,250
that our system works will be authorized

186
00:07:44,379 --> 00:07:41,479
to proceed with the cargo resupply

187
00:07:45,570 --> 00:07:44,389
service beginning this fall and we will

188
00:07:47,800 --> 00:07:45,580

launch every three to six months

189
00:07:49,180 --> 00:07:47,810
carrying approximately two tons of cargo

190
00:07:51,219 --> 00:07:49,190
each time to the International Space

191
00:07:53,469 --> 00:07:51,229
Station and that's a pretty exciting

192
00:07:55,210 --> 00:07:53,479
challenge for us but a demonstration of

193
00:07:57,250 --> 00:07:55,220
what the commercial industry can do to

194
00:07:59,260 --> 00:07:57,260
help maintain human spaceflight and

195
00:08:02,050 --> 00:07:59,270
maintain the International Space Station

196
00:08:03,879 --> 00:08:02,060
and NASA is working with their industry

197
00:08:05,830 --> 00:08:03,889
partners very very hard to make sure

198
00:08:07,750 --> 00:08:05,840
that we can move in that direction we

199
00:08:09,820 --> 00:08:07,760
can do what we do best so that they can

200
00:08:12,670 --> 00:08:09,830
go do what they do best I especially

201
00:08:15,100 --> 00:08:12,680
want to thank our partners in this a lot

202
00:08:17,230 --> 00:08:15,110
of people some of whom are in the room

203
00:08:19,779 --> 00:08:17,240
here started us out several years ago

204
00:08:21,339 --> 00:08:19,789
and kept us going we've had we're on our

205
00:08:24,159 --> 00:08:21,349
third program manager now the others

206
00:08:25,540 --> 00:08:24,169
have moved on to other things Mike

207
00:08:27,969 --> 00:08:25,550
Pinkston and his team have been working

208
00:08:31,930 --> 00:08:27,979
very hard to get ready Dale and his team

209
00:08:33,399 --> 00:08:31,940
and Billy and your work have gotten us

210
00:08:34,630 --> 00:08:33,409
ready and we really want to thank Mars

211
00:08:36,579 --> 00:08:34,640
for all the hard work that you've put

212
00:08:38,170 --> 00:08:36,589
into this and the state of Virginia

213
00:08:40,209 --> 00:08:38,180

support in making sure that we have a

214
00:08:41,320 --> 00:08:40,219
launch pad here now of course we

215
00:08:42,909 --> 00:08:41,330
wouldn't have this launch pad if we

216
00:08:45,640 --> 00:08:42,919
didn't have a place to put it in Wallops

217
00:08:48,220 --> 00:08:45,650
center space flight center has has

218
00:08:49,820 --> 00:08:48,230
provided us with that place and we are

219
00:08:51,380 --> 00:08:49,830
tenants and customers here

220
00:08:52,940 --> 00:08:51,390
but it's a great partnership because

221
00:08:55,760 --> 00:08:52,950
they provide the range they provide the

222
00:08:57,830 --> 00:08:55,770
integration facility and and the Wallops

223
00:09:00,020 --> 00:08:57,840
folks have worked very hard to make sure

224
00:09:01,940 --> 00:09:00,030
that not only are we safe but we're also

225
00:09:04,250 --> 00:09:01,950
ready to go and provided their own

226
00:09:05,810 --> 00:09:04,260
expertise in launching and thousands of

227
00:09:08,360 --> 00:09:05,820
rockets have been lost here from Wallops

228
00:09:09,620 --> 00:09:08,370
and so this is just a bigger better

229
00:09:11,720 --> 00:09:09,630
version of what they've been doing in

230
00:09:13,450 --> 00:09:11,730
the past but it's the same people paying

231
00:09:16,220 --> 00:09:13,460
attention to the safety into the range

232
00:09:18,200 --> 00:09:16,230
we want to thank the International Space

233
00:09:21,530 --> 00:09:18,210
Station program and NASA at large for

234
00:09:22,910 --> 00:09:21,540
the support it's been a great

235
00:09:25,700 --> 00:09:22,920
partnership working through various

236
00:09:28,100 --> 00:09:25,710
problems everything from funding to

237
00:09:30,620 --> 00:09:28,110
schedule to finding parts to help us get

238
00:09:32,390 --> 00:09:30,630

the pad ready from various NASA centers

239
00:09:34,190 --> 00:09:32,400
including bringing people in from all

240
00:09:35,990 --> 00:09:34,200
over the agency to help us out when we

241
00:09:38,990 --> 00:09:36,000
needed it so it's been a true team

242
00:09:41,270 --> 00:09:39,000
effort to try to achieve this

243
00:09:43,220 --> 00:09:41,280
commercialization of cargo carrier into

244
00:09:46,340 --> 00:09:43,230
the International Space Station but also

245
00:09:48,800 --> 00:09:46,350
to broaden the capability of the United

246
00:09:51,680 --> 00:09:48,810
States as a spacefaring nation and now

247
00:09:55,130 --> 00:09:51,690
we will have a new liquid rocket

248
00:09:56,780 --> 00:09:55,140
spaceport on the east coast to carry not

249
00:09:58,400 --> 00:09:56,790
only cargo but other spacecraft into

250
00:10:00,260 --> 00:09:58,410
orbit and that's a great expansion of

251
00:10:02,660 --> 00:10:00,270
our capabilities now one of the things

252
00:10:04,640 --> 00:10:02,670
that we wanted to achieve by by setting

253
00:10:07,100 --> 00:10:04,650
up shop here at Wallops and launching

254
00:10:09,410 --> 00:10:07,110
from here I've got a short video that

255
00:10:11,900 --> 00:10:09,420
when they're ready to show it we can

256
00:10:13,310 --> 00:10:11,910
start rolling it I'll narrate it and

257
00:10:15,830 --> 00:10:13,320
tell you a little bit about what you're

258
00:10:18,470 --> 00:10:15,840
seeing if I can see it on here I hope

259
00:10:19,850 --> 00:10:18,480
and it'll give you a good illustration

260
00:10:22,960 --> 00:10:19,860
of what you're going to see tomorrow

261
00:10:25,190 --> 00:10:22,970
this is computer generated however so it

262
00:10:30,520 --> 00:10:25,200
bears a little bit of resemblance to

263
00:10:35,300 --> 00:10:30,530

reality and I'm sure it's on its way

264
00:10:38,480 --> 00:10:35,310
while it's coming I'll keep talking I've

265
00:10:42,020 --> 00:10:38,490
had to do this before too though my tap

266
00:10:48,820 --> 00:10:42,030
tap shoes are worn out it's rolling okay

267
00:10:53,040 --> 00:10:51,830
okay well we will launch off the pad and

268
00:10:55,019 --> 00:10:53,050
and the

269
00:10:56,820 --> 00:10:55,029
the engines will fire for approximately

270
00:10:59,400 --> 00:10:56,830
four minutes and then we'll switch over

271
00:11:01,290 --> 00:10:59,410
to the second stage a single solid

272
00:11:02,460 --> 00:11:01,300
booster that will carry us into orbit

273
00:11:04,410 --> 00:11:02,470
the entire launch will take

274
00:11:06,509 --> 00:11:04,420
approximately 10 minutes and we'll

275
00:11:08,820 --> 00:11:06,519
deliver the Cygnus simulator into into

276
00:11:10,639 --> 00:11:08,830
orbit on the demonstration flight will

277
00:11:13,530 --> 00:11:10,649
actually carry the Cygnus spacecraft and

278
00:11:15,060 --> 00:11:13,540
it will carry as I said on the first

279
00:11:17,370 --> 00:11:15,070
flight a little less than a ton of cargo

280
00:11:19,230 --> 00:11:17,380
and on subsequent place about two tons

281
00:11:21,449 --> 00:11:19,240
over the course of the next three to

282
00:11:23,790 --> 00:11:21,459
five days the spacecraft will go through

283
00:11:25,560 --> 00:11:23,800
the rendezvous operations necessary to

284
00:11:27,630 --> 00:11:25,570
to approach the International Space

285
00:11:29,130 --> 00:11:27,640
Station on the demo flight we go through

286
00:11:31,199 --> 00:11:29,140
several exercises to prove that we are

287
00:11:33,389 --> 00:11:31,209
safe and we can't abort if necessary and

288
00:11:35,970 --> 00:11:33,399

that we can safely approach the station

289
00:11:37,440 --> 00:11:35,980
at low speed and under control once we

290
00:11:39,090 --> 00:11:37,450
arrive at a point about 10 meters away

291
00:11:42,300 --> 00:11:39,100
from the station the crew will grab us

292
00:11:45,180 --> 00:11:42,310
with the robotic arm and then attaches

293
00:11:47,190 --> 00:11:45,190
to the nadir port of the note2 at that

294
00:11:48,990 --> 00:11:47,200
point once everything is sealed in the

295
00:11:51,480 --> 00:11:49,000
and the leak checks have been completed

296
00:11:53,639 --> 00:11:51,490
they'll open the hatch and unload the

297
00:11:56,460 --> 00:11:53,649
cargo and any other surprises we might

298
00:11:57,870 --> 00:11:56,470
throw in there for him and and spend a

299
00:12:00,000 --> 00:11:57,880
couple days doing that then they'll load

300
00:12:03,230 --> 00:12:00,010
it with disposal cargo some people call

301
00:12:06,180 --> 00:12:03,240
that trash but we prefer to call it

302
00:12:08,160 --> 00:12:06,190
disposal cargo and then we will unbirth

303
00:12:11,250 --> 00:12:08,170
from the station be released from the

304
00:12:13,319 --> 00:12:11,260
robotic arm and then go through a guided

305
00:12:15,120 --> 00:12:13,329
reentry and burn up on re-entry over the

306
00:12:16,800 --> 00:12:15,130
Pacific so that everything is basically

307
00:12:26,389 --> 00:12:16,810
destroyed before it reaches the surface

308
00:12:29,340 --> 00:12:26,399
of the earth is it still rolling okay

309
00:12:31,949 --> 00:12:29,350
that in itself I think will be a welcome

310
00:12:35,250 --> 00:12:31,959
addition to the to the station station

311
00:12:38,610 --> 00:12:35,260
programs repertoire of taking clothing

312
00:12:42,360 --> 00:12:38,620
tools experiments etc to the crew this

313
00:12:44,550 --> 00:12:42,370

in itself will be the beginnings of the

314
00:12:45,990 --> 00:12:44,560
capability of expanding the crew size on

315
00:12:48,360 --> 00:12:46,000
the International Space Station and

316
00:12:51,030 --> 00:12:48,370
continuing to grow the research program

317
00:12:53,460 --> 00:12:51,040
that it was designed to support and our

318
00:12:57,660 --> 00:12:53,470
cargo spacecraft as well as the others

319
00:12:59,250 --> 00:12:57,670
that are that are in in service now will

320
00:13:03,780 --> 00:12:59,260
provide them NASA with that capability

321
00:13:06,980 --> 00:13:03,790
to keep moving we can we can re-entered

322
00:13:14,610 --> 00:13:11,400
well I hope you enjoyed the video I just

323
00:13:16,440 --> 00:13:14,620
want to say in closing that we are

324
00:13:19,170 --> 00:13:16,450
extremely excited to be here as a part

325
00:13:20,850 --> 00:13:19,180
of this this is a very will be a very

326
00:13:23,490 --> 00:13:20,860
important event in the history of

327
00:13:24,930 --> 00:13:23,500
orbital sciences everybody in the

328
00:13:26,250 --> 00:13:24,940
company has been paying attention to

329
00:13:28,440 --> 00:13:26,260
this and a heck of a lot of us have been

330
00:13:30,330 --> 00:13:28,450
working on it for several years so we've

331
00:13:32,130 --> 00:13:30,340
got our hearts and souls in this but we

332
00:13:33,930 --> 00:13:32,140
are also keenly aware that this is not

333
00:13:36,630 --> 00:13:33,940
just for our company it's for the

334
00:13:38,520 --> 00:13:36,640
country and in order for the United

335
00:13:40,260 --> 00:13:38,530
States to maintain a presence in space

336
00:13:43,230 --> 00:13:40,270
and to continue the human spaceflight

337
00:13:45,060 --> 00:13:43,240
program going so that we can go beyond

338
00:13:47,010 --> 00:13:45,070

low-earth orbit beyond the International

339
00:13:48,690 --> 00:13:47,020
Space Station and out into the solar

340
00:13:50,790 --> 00:13:48,700
system and beyond we need this

341
00:13:52,890 --> 00:13:50,800
capability in order to keep the crew

342
00:13:54,630 --> 00:13:52,900
safe and to keep them well-fed and to

343
00:13:56,190 --> 00:13:54,640
keep the research going so this is

344
00:13:58,380 --> 00:13:56,200
important to the future of the country

345
00:14:00,420 --> 00:13:58,390
and to our future generations if they're

346
00:14:02,370 --> 00:14:00,430
going to continue to be explorers we are

347
00:14:05,970 --> 00:14:02,380
real honored to be a part of that so

348
00:14:08,160 --> 00:14:05,980
thank you all very much thanks Bill all

349
00:14:10,050 --> 00:14:08,170
right very good well good afternoon and

350
00:14:12,090 --> 00:14:10,060
thanks everyone for coming you couldn't

351
00:14:14,760 --> 00:14:12,100
have picked a better day I think to come

352
00:14:17,880 --> 00:14:14,770
to Wallops I've been this site director

353
00:14:20,310 --> 00:14:17,890
here for about three years now and while

354
00:14:23,490 --> 00:14:20,320
this upcoming event is certainly

355
00:14:25,710 --> 00:14:23,500
monumental to me it's also a huge deal

356
00:14:27,630 --> 00:14:25,720
to all the men and women here at Wallops

357
00:14:30,150 --> 00:14:27,640
that have worked on it for the last five

358
00:14:31,890 --> 00:14:30,160
years or so and so with that you know

359
00:14:34,740 --> 00:14:31,900
I'd like to say congratulations to our

360
00:14:37,860 --> 00:14:34,750
orbital sciences to Dale mashing the

361
00:14:40,200 --> 00:14:37,870
Mars team and to everyone else that has

362
00:14:42,329 --> 00:14:40,210
had a hand in basically getting us to

363
00:14:43,920 --> 00:14:42,339

this to this point this will be the

364
00:14:46,290 --> 00:14:43,930
largest rocket ever to launch from

365
00:14:49,530 --> 00:14:46,300
Wallops Island so it's a it's a big

366
00:14:52,740 --> 00:14:49,540
occasion you know thinking back on the

367
00:14:55,550 --> 00:14:52,750
history that has has made Wallops what

368
00:14:59,160 --> 00:14:55,560
it is I had launched last week with the

369
00:15:01,770 --> 00:14:59,170
the retirees group they come in kind of

370
00:15:03,780 --> 00:15:01,780
on a every couple of months and we

371
00:15:06,510 --> 00:15:03,790
talked about you know what is going on

372
00:15:09,270 --> 00:15:06,520
or what isn't in this case you know I

373
00:15:11,490 --> 00:15:09,280
thank them for the legacy that kind of

374
00:15:15,150 --> 00:15:11,500
that they have built here Wolf's has

375
00:15:17,950 --> 00:15:15,160
been here 68 years launched some 16,000

376
00:15:19,030 --> 00:15:17,960
rockets this one is no doubt by

377
00:15:21,220 --> 00:15:19,040
are going to be the largest thing to

378
00:15:23,430 --> 00:15:21,230
ever come off the island and so we're

379
00:15:27,640 --> 00:15:23,440
certainly looking forward to that and

380
00:15:30,790 --> 00:15:27,650
along with what they have done I also

381
00:15:33,360 --> 00:15:30,800
need to thank the community here locally

382
00:15:38,550 --> 00:15:33,370
for the support that they have given us

383
00:15:41,710 --> 00:15:38,560
certainly all the area leaders delegates

384
00:15:44,920 --> 00:15:41,720
legislators the support that you have

385
00:15:47,560 --> 00:15:44,930
given us makes all this possible and so

386
00:15:49,540 --> 00:15:47,570
with a focus on antares this also kind

387
00:15:53,650 --> 00:15:49,550
of reintroduces Wallops I think to the

388
00:15:58,210 --> 00:15:53,660

world we've got a crew on a p3 aircraft

389
00:16:01,630 --> 00:15:58,220
up in the in the North doing an ice

390
00:16:03,550 --> 00:16:01,640
bridge which is collecting data on ice

391
00:16:06,220 --> 00:16:03,560
sheets up there in the north they'll be

392
00:16:08,200 --> 00:16:06,230
doing a similar event in the South this

393
00:16:12,070 --> 00:16:08,210
later this year we've got another crew

394
00:16:14,410 --> 00:16:12,080
flying a mission called carve up in

395
00:16:16,660 --> 00:16:14,420
Alaska which is the carbon Arctic

396
00:16:19,510 --> 00:16:16,670
reservoirs vulnerability experiment and

397
00:16:21,430 --> 00:16:19,520
then the quadrant lay it all we've got a

398
00:16:24,160 --> 00:16:21,440
sounding rocket team out there prepping

399
00:16:26,290 --> 00:16:24,170
a couple of vehicles for flight out

400
00:16:28,960 --> 00:16:26,300
there they'll help us understand better

401
00:16:31,570 --> 00:16:28,970
how solar weather affects navigation and

402
00:16:34,720 --> 00:16:31,580
communication signals the scientific

403
00:16:36,610 --> 00:16:34,730
balloon team is just completed its third

404
00:16:38,200 --> 00:16:36,620
super pressure balloon they're getting

405
00:16:40,900 --> 00:16:38,210
that ready for a flight coming out of

406
00:16:42,490 --> 00:16:40,910
Sweden a little bit later this year the

407
00:16:45,340 --> 00:16:42,500
NASA global Hawks will be coming back

408
00:16:47,380 --> 00:16:45,350
here again this summer again to study

409
00:16:48,580 --> 00:16:47,390
hurricane formation obviously very

410
00:16:52,150 --> 00:16:48,590
important to us here on the Eastern

411
00:16:55,350 --> 00:16:52,160
Shore and also I think to point out in

412
00:16:59,380 --> 00:16:55,360
the sep tember late August timeframe

413
00:17:01,350 --> 00:16:59,390

Virginia is going to support the launch

414
00:17:03,850 --> 00:17:01,360
of the ladee mission would be the first

415
00:17:05,140 --> 00:17:03,860
planetary mission for Wallops so we're

416
00:17:09,760 --> 00:17:05,150
going to the moon this year by way of

417
00:17:11,680 --> 00:17:09,770
Virginia and then the you know I can

418
00:17:15,340 --> 00:17:11,690
continue on and on but i think the right

419
00:17:16,329 --> 00:17:15,350
the big deal here is Antares and for

420
00:17:19,360 --> 00:17:16,339
those of you that have been out to the

421
00:17:20,740 --> 00:17:19,370
island have seen the site there have you

422
00:17:22,240 --> 00:17:20,750
can kind of come up on it especially as

423
00:17:25,270 --> 00:17:22,250
your as your cresting the causeway

424
00:17:26,650 --> 00:17:25,280
bridge and it it stands out in the

425
00:17:29,610 --> 00:17:26,660
evening with the lights on it it really

426
00:17:32,610 --> 00:17:29,620
it really shows but I just like to

427
00:17:36,150 --> 00:17:32,620
you know wish these guys all the best

428
00:17:38,640 --> 00:17:36,160
tomorrow and that I'll pass things back

429
00:17:40,380 --> 00:17:38,650
over to you to renovate oh okay let's go

430
00:17:42,120 --> 00:17:40,390
ahead and go to questions and answers

431
00:17:43,410 --> 00:17:42,130
for those in the audience if you just

432
00:17:45,390 --> 00:17:43,420
say your name and media affiliation

433
00:17:46,740 --> 00:17:45,400
that'd be a help let's start with Dan

434
00:17:52,850 --> 00:17:46,750
Leone here in the front and we'll get a

435
00:17:57,420 --> 00:17:55,170
everybody dan Leone with space news

436
00:17:59,160 --> 00:17:57,430
thanks for having us all out here Frank

437
00:18:00,660 --> 00:17:59,170
I want to pick up on something that you

438
00:18:02,790 --> 00:18:00,670

said but embedded in here is also a

439
00:18:04,620 --> 00:18:02,800
question fulfill you mentioned this was

440
00:18:07,169 --> 00:18:04,630
going to be a step in having a larger

441
00:18:09,120 --> 00:18:07,179
space station crew so Phil I'm curious

442
00:18:13,020 --> 00:18:09,130
we've heard bill Gerstenmaier say time

443
00:18:14,400 --> 00:18:13,030
and time again maybe literally to one

444
00:18:16,620 --> 00:18:14,410
time in another time that there could be

445
00:18:18,330 --> 00:18:16,630
a seven-member crew provided that all

446
00:18:20,910 --> 00:18:18,340
the commercial cargo and crew objectives

447
00:18:23,430 --> 00:18:20,920
go according to plan I'm curious whether

448
00:18:25,440 --> 00:18:23,440
the seven crew is an official goal for

449
00:18:27,030 --> 00:18:25,450
NASA yet and then Frank I'm curious what

450
00:18:31,200 --> 00:18:27,040
part orbital would play with Cygnus and

451
00:18:32,880 --> 00:18:31,210
antares to support I'm not sure I'd call

452
00:18:34,740 --> 00:18:32,890
it an official goal it's definitely

453
00:18:37,020 --> 00:18:34,750
something that we are aspired we aspire

454
00:18:38,460 --> 00:18:37,030
to it's going to be dependent on the

455
00:18:41,940 --> 00:18:38,470
technical progress of the crew program

456
00:18:43,440 --> 00:18:41,950
as well as future budgets but the space

457
00:18:45,180 --> 00:18:43,450
station was designed for a seven-person

458
00:18:47,250 --> 00:18:45,190
crew we'd like to make it fully

459
00:18:49,430 --> 00:18:47,260
productive that's what it's up there to

460
00:18:52,740 --> 00:18:49,440
do is research in microgravity

461
00:18:54,660 --> 00:18:52,750
innovative activities may be potentially

462
00:18:57,630 --> 00:18:54,670
commercial applications and to really do

463
00:18:59,700 --> 00:18:57,640

that effectively you definitely need

464
00:19:03,000 --> 00:18:59,710
crew time so we would like to get it up

465
00:19:03,990 --> 00:19:03,010
to seven if possible that is definitely

466
00:19:06,180 --> 00:19:04,000
something that we are going to be

467
00:19:07,820 --> 00:19:06,190
aspiring to I don't know if you can call

468
00:19:09,450 --> 00:19:07,830
it an official goal but it's it's

469
00:19:13,020 --> 00:19:09,460
definitely something that we're working

470
00:19:16,169 --> 00:19:13,030
towards this antari Cygnus capability is

471
00:19:20,190 --> 00:19:16,179
is a key component of that we want

472
00:19:21,000 --> 00:19:20,200
assured cargo access to the ISS and then

473
00:19:23,669 --> 00:19:21,010
we're going to have to get crew

474
00:19:25,290 --> 00:19:23,679
capability up there as well so there's a

475
00:19:26,820 --> 00:19:25,300
number of gates to get there but yes

476
00:19:30,270 --> 00:19:26,830
that's that's sort of the path that we

477
00:19:33,030 --> 00:19:30,280
would like to pursue yeah and Fran as

478
00:19:35,640 --> 00:19:33,040
far as over battles role I mean what

479
00:19:37,410 --> 00:19:35,650
Phil said is correct and I already knew

480
00:19:39,210 --> 00:19:37,420
the crew as the station was designed for

481
00:19:41,010 --> 00:19:39,220
seven crew but I also know that without

482
00:19:41,820 --> 00:19:41,020
our participation and all of the people

483
00:19:43,470 --> 00:19:41,830
that are

484
00:19:46,139 --> 00:19:43,480
in cargo and eventually crew

485
00:19:47,820 --> 00:19:46,149
transportation you can't get there so we

486
00:19:50,159 --> 00:19:47,830
are a part of the solution to getting to

487
00:19:52,350 --> 00:19:50,169
seven crew it's NASA's job to determine

488
00:19:55,259 --> 00:19:52,360

when where and how with the help of

489
00:19:57,210 --> 00:19:55,269
Congress to expand the capabilities of

490
00:19:59,340 --> 00:19:57,220
the station will will be ready to

491
00:20:01,350 --> 00:19:59,350
support if they can achieve that okay

492
00:20:03,210 --> 00:20:01,360
that's not three hands fire up fast so

493
00:20:07,440 --> 00:20:03,220
we'll go Ken and Tareq and then we'll go

494
00:20:09,389 --> 00:20:07,450
here to the side if that's okay I thank

495
00:20:11,610 --> 00:20:09,399
you and thanks for doing this event a

496
00:20:13,649 --> 00:20:11,620
fantastic rocket you have for Frank

497
00:20:15,779 --> 00:20:13,659
Culbertson can you talked a little bit

498
00:20:17,159 --> 00:20:15,789
about the question I have at the end but

499
00:20:19,200 --> 00:20:17,169
can you put this in a little bit more

500
00:20:21,690 --> 00:20:19,210
personal terms since you have been an

501
00:20:23,430 --> 00:20:21,700
astronaut you've been to the ISS you

502
00:20:26,340 --> 00:20:23,440
know they need these science experiments

503
00:20:28,409 --> 00:20:26,350
so put your your mission your sickness

504
00:20:30,810 --> 00:20:28,419
mission in that perspective of just how

505
00:20:35,580 --> 00:20:30,820
important this is things well I think

506
00:20:41,720 --> 00:20:35,590
the element of this that is driving the

507
00:20:45,090 --> 00:20:41,730
importance of our delivery SpaceX HTV

508
00:20:46,529 --> 00:20:45,100
the Russians ISA is the fact that we

509
00:20:47,820 --> 00:20:46,539
don't have the shuttle anymore in the

510
00:20:51,029 --> 00:20:47,830
shuttle with all of its cargo capability

511
00:20:52,710 --> 00:20:51,039
and lift capability was able to keep the

512
00:20:54,960 --> 00:20:52,720
station very well surprised supplied

513
00:20:56,519 --> 00:20:54,970

with things of any size from the largest

514
00:20:58,259 --> 00:20:56,529
battery requirement to the smallest

515
00:20:59,700 --> 00:20:58,269
instrument but without the shuttle we

516
00:21:00,930 --> 00:20:59,710
need the other means of doing that and

517
00:21:03,539 --> 00:21:00,940
that's going to be a multi-faceted

518
00:21:06,480 --> 00:21:03,549
solution one of which one of the facets

519
00:21:08,940 --> 00:21:06,490
of which is Antares and sickness and we

520
00:21:10,830 --> 00:21:08,950
intend to be ready to do that by later

521
00:21:12,990 --> 00:21:10,840
this year and do it on a regular basis

522
00:21:15,149 --> 00:21:13,000
for as long as the station continues to

523
00:21:17,009 --> 00:21:15,159
operate and we're hoping that NASA will

524
00:21:18,509 --> 00:21:17,019
be happy with what we do in this first

525
00:21:20,730 --> 00:21:18,519
phase of the contract and if they extend

526
00:21:24,269 --> 00:21:20,740
it that will be a part of that too but

527
00:21:26,430 --> 00:21:24,279
but having the ability to predict how

528
00:21:28,080 --> 00:21:26,440
much and when you're going to be able to

529
00:21:29,700 --> 00:21:28,090
deliver cargo is very important to the

530
00:21:31,769 --> 00:21:29,710
station program in order to plan the

531
00:21:33,389 --> 00:21:31,779
crew training the crew arrivals the crew

532
00:21:35,279 --> 00:21:33,399
departures it's a very complicated

533
00:21:37,590 --> 00:21:35,289
traffic problem and they need

534
00:21:39,840 --> 00:21:37,600
predictable launch capability from the

535
00:21:41,970 --> 00:21:39,850
providers in order to keep it working

536
00:21:43,049 --> 00:21:41,980
otherwise you'll end up with situations

537
00:21:44,730 --> 00:21:43,059
where you either don't have enough

538
00:21:47,129 --> 00:21:44,740

supplies and part of the crew has to

539
00:21:49,200 --> 00:21:47,139
come home or you may not be able to just

540
00:21:52,919 --> 00:21:49,210
sustain the the research that you have

541
00:21:58,960 --> 00:21:56,440
thank you a target with space com I

542
00:22:02,529 --> 00:21:58,970
think I have a question for Phil and for

543
00:22:05,980 --> 00:22:02,539
Dale the goal you know from from kotzen

544
00:22:07,899 --> 00:22:05,990
and the commercial use of cargo delivery

545
00:22:10,289 --> 00:22:07,909
you know was to foster what we're seeing

546
00:22:12,999 --> 00:22:10,299
now the new vehicles the new spacecraft

547
00:22:15,190 --> 00:22:13,009
but you're getting another spaceport out

548
00:22:20,489 --> 00:22:15,200
of it as well and I'm wondering with the

549
00:22:23,350 --> 00:22:20,499
value of a new liquid-fueled capable

550
00:22:26,049 --> 00:22:23,360
spaceport is both for NASA for Virginia

551
00:22:27,460 --> 00:22:26,059
and then also for orbital Frank if you

552
00:22:31,409 --> 00:22:27,470
can kind of comment on just having that

553
00:22:35,799 --> 00:22:31,419
new capability you know a mid-atlantic

554
00:22:38,499 --> 00:22:35,809
launching site thanks so I don't want to

555
00:22:41,499 --> 00:22:38,509
delve into hyperbole but it is a key

556
00:22:43,359 --> 00:22:41,509
critical capability for not only for

557
00:22:46,980 --> 00:22:43,369
NASA in the ISS program but I think for

558
00:22:50,019 --> 00:22:46,990
the entire nation it's going to help

559
00:22:52,359 --> 00:22:50,029
economically for commercial customers

560
00:22:54,220 --> 00:22:52,369
that the Antares is going to fly it will

561
00:22:56,470 --> 00:22:54,230
potentially help national security if

562
00:22:58,060 --> 00:22:56,480
Antares flies any DoD or national

563
00:23:00,489 --> 00:22:58,070

security missions it's definitely going

564
00:23:03,659 --> 00:23:00,499
to help NASA as we've said many times

565
00:23:07,149 --> 00:23:03,669
this is a key capability to keep Riss

566
00:23:09,430 --> 00:23:07,159
resupplied and productive I mean that's

567
00:23:10,960 --> 00:23:09,440
the whole point of why we put ISS up

568
00:23:13,480 --> 00:23:10,970
there is so that we could do these

569
00:23:16,239 --> 00:23:13,490
microgravity experiments you need the

570
00:23:20,529 --> 00:23:16,249
car go up there and the regular pace of

571
00:23:23,470 --> 00:23:20,539
new experiments up and down to really

572
00:23:25,119 --> 00:23:23,480
fully utilize that national lab if you

573
00:23:27,519 --> 00:23:25,129
think about it and lab on earth you come

574
00:23:29,109 --> 00:23:27,529
in and you do tests all the time so

575
00:23:31,269 --> 00:23:29,119
you're going to need a lot of equipment

576
00:23:34,269 --> 00:23:31,279
going up and down so it is a definitely

577
00:23:35,560 --> 00:23:34,279
a key resource and I think to harken

578
00:23:38,049 --> 00:23:35,570
back to one of the previous questions

579
00:23:42,580 --> 00:23:38,059
regarding shuttle I think we saw after

580
00:23:44,919 --> 00:23:42,590
Columbia how tenuous are our lifeline is

581
00:23:46,869 --> 00:23:44,929
our toehold to low-earth orbit in the

582
00:23:51,039 --> 00:23:46,879
international space station is that one

583
00:23:52,869 --> 00:23:51,049
tragic accident really made it really

584
00:23:54,700 --> 00:23:52,879
challenging for NASA to maintain that

585
00:23:56,499 --> 00:23:54,710
ISS during that very difficult period of

586
00:23:59,859 --> 00:23:56,509
time we are in such a better situation

587
00:24:01,919 --> 00:23:59,869
today and about to be even better with

588
00:24:04,200 --> 00:24:01,929

the debut of this new capability a

589
00:24:10,060 --> 00:24:04,210
completely independent

590
00:24:12,669 --> 00:24:10,070
pad provides what we call assured access

591
00:24:14,560 --> 00:24:12,679
a significantly higher confidence level

592
00:24:16,030 --> 00:24:14,570
and our ability to deliver to deliver

593
00:24:17,950 --> 00:24:16,040
cargo to low Earth orbit in the

594
00:24:21,280 --> 00:24:17,960
International Space Station so again I

595
00:24:22,350 --> 00:24:21,290
don't want to one to use any hyperbole

596
00:24:25,510 --> 00:24:22,360
but I don't know if it could be

597
00:24:27,490 --> 00:24:25,520
understated are overstated how important

598
00:24:29,650 --> 00:24:27,500
this this program is to us and we are

599
00:24:31,750 --> 00:24:29,660
very pleased to see how far it is we are

600
00:24:35,020 --> 00:24:31,760
not there yet as Frank mentioned this is

601
00:24:37,090 --> 00:24:35,030
a test test flight and what I like to

602
00:24:39,730 --> 00:24:37,100
hear not only from Frank but also from

603
00:24:41,350 --> 00:24:39,740
the NASA side is our commitment we since

604
00:24:43,960 --> 00:24:41,360
this is so important we are going to see

605
00:24:45,310 --> 00:24:43,970
this through we've gone through a lot of

606
00:24:46,720 --> 00:24:45,320
challenges already we've knocked down

607
00:24:48,460 --> 00:24:46,730
those challenges with the hard work of

608
00:24:49,810 --> 00:24:48,470
the orbital sciences team and the rest

609
00:24:51,640 --> 00:24:49,820
of their partners and we're going to

610
00:24:53,020 --> 00:24:51,650
continue to do that spaceflight it's

611
00:24:54,669 --> 00:24:53,030
always going to be hard there's going to

612
00:24:57,490 --> 00:24:54,679
always be difficulties and challenges

613
00:24:59,669 --> 00:24:57,500

ahead but the fact that all the partners

614
00:25:01,900 --> 00:24:59,679
are committed to this additional us

615
00:25:05,380 --> 00:25:01,910
capability is what gives me confidence

616
00:25:06,549 --> 00:25:05,390
that will eventually get there stick one

617
00:25:09,190 --> 00:25:06,559
more here in the audience and they'll go

618
00:25:10,690 --> 00:25:09,200
to the phone line microphones here gene

619
00:25:11,770 --> 00:25:10,700
michalka with talking space for self

620
00:25:13,750 --> 00:25:11,780
gentleman thanks for taking our

621
00:25:16,690 --> 00:25:13,760
questions here today congratulations and

622
00:25:18,400 --> 00:25:16,700
wishing you guys well tomorrow Antares

623
00:25:20,530 --> 00:25:18,410
is going to be launched within eyesight

624
00:25:21,520 --> 00:25:20,540
of everybody here in the Northeast but

625
00:25:23,289 --> 00:25:21,530
it's also going to be launched within

626
00:25:27,310 --> 00:25:23,299
eyesight of our hired help over in

627
00:25:29,919 --> 00:25:27,320
capitol hill if you yeah if you go ahead

628
00:25:31,870 --> 00:25:29,929
and you know what do you hope that folks

629
00:25:33,580 --> 00:25:31,880
will might be going ahead taking a look

630
00:25:34,930 --> 00:25:33,590
outside their office windows and seeing

631
00:25:36,340 --> 00:25:34,940
this thing going up around five o'clock

632
00:25:38,289 --> 00:25:36,350
tomorrow what do you think their

633
00:25:40,990 --> 00:25:38,299
thoughts are going to be and what do you

634
00:25:43,210 --> 00:25:41,000
hope they are Thanks well I hope they're

635
00:25:45,610 --> 00:25:43,220
watching first of all because they can

636
00:25:47,620 --> 00:25:45,620
go out on the the eastern portico and

637
00:25:48,820 --> 00:25:47,630
watch our they can go to the top of the

638
00:25:50,380 --> 00:25:48,830

tall buildings and they'll be able to

639
00:25:52,450 --> 00:25:50,390
see us if they look in the right

640
00:25:55,150 --> 00:25:52,460
direction which is approximately 140

641
00:25:59,590 --> 00:25:55,160
degrees in 85 miles

642
00:26:01,060 --> 00:25:59,600
but and we will have folks hosting an

643
00:26:03,690 --> 00:26:01,070
event down there to try to encourage

644
00:26:06,250 --> 00:26:03,700
them to come and watch on TV and live

645
00:26:09,430 --> 00:26:06,260
but i think the the message that comes

646
00:26:10,930 --> 00:26:09,440
out of that is that we are growing in

647
00:26:13,030 --> 00:26:10,940
our space port capability in this

648
00:26:15,880 --> 00:26:13,040
country right down the road from

649
00:26:17,830 --> 00:26:15,890
Washington to the west we build

650
00:26:19,990 --> 00:26:17,840
satellites and other components for

651
00:26:21,820 --> 00:26:20,000
space flight to the east now in Wallops

652
00:26:23,080 --> 00:26:21,830
we're actually launching them and we

653
00:26:25,090 --> 00:26:23,090
will be launching them regularly and

654
00:26:26,860 --> 00:26:25,100
that's a new experience people think you

655
00:26:29,110 --> 00:26:26,870
have to go to Florida to do a space

656
00:26:30,850 --> 00:26:29,120
launch Florida has tremendous capability

657
00:26:33,070 --> 00:26:30,860
and we may launched from there again

658
00:26:34,690 --> 00:26:33,080
also too but right now we're launching

659
00:26:36,400 --> 00:26:34,700
from Virginia and within sight of the

660
00:26:38,440 --> 00:26:36,410
nation's capital and I think it's

661
00:26:40,690 --> 00:26:38,450
important that people see that so they

662
00:26:42,850 --> 00:26:40,700
know that the space program is alive and

663
00:26:44,410 --> 00:26:42,860

well the space program is still

664
00:26:46,990 --> 00:26:44,420
supporting human space flight and the

665
00:26:49,090 --> 00:26:47,000
commercial industry is involved in that

666
00:26:50,830 --> 00:26:49,100
and we're trying to move out in many

667
00:26:53,050 --> 00:26:50,840
different directions to ensure that the

668
00:26:54,760 --> 00:26:53,060
American industry the American public

669
00:26:58,450 --> 00:26:54,770
the American taxpayer has access to

670
00:27:00,670 --> 00:26:58,460
space and someday hopefully in person

671
00:27:03,070 --> 00:27:00,680
but certainly by sending other people

672
00:27:05,800 --> 00:27:03,080
sending experiments sending payloads and

673
00:27:08,410 --> 00:27:05,810
sending other missions to to either low

674
00:27:11,530 --> 00:27:08,420
Earth orbit or beyond and Wallops is a

675
00:27:14,470 --> 00:27:11,540
big piece of that one of the reasons

676
00:27:15,820 --> 00:27:14,480
we're here is because we we actually ran

677
00:27:18,070 --> 00:27:15,830
a competition between Florida and

678
00:27:19,480 --> 00:27:18,080
Virginia and one of the many factors we

679
00:27:21,400 --> 00:27:19,490
considered was the fact that we are of a

680
00:27:23,290 --> 00:27:21,410
ginger company and we're not too far

681
00:27:25,750 --> 00:27:23,300
from here and so that played a role but

682
00:27:27,400 --> 00:27:25,760
also the fact that the prediction was we

683
00:27:29,560 --> 00:27:27,410
would have less traffic conflicts here

684
00:27:31,540 --> 00:27:29,570
now ironically it's like driving the

685
00:27:33,580 --> 00:27:31,550
back roads here on the Eastern Shore if

686
00:27:36,070 --> 00:27:33,590
there's two cars that are going to meet

687
00:27:37,060 --> 00:27:36,080
up at a stop sign I mean only two cars

688
00:27:39,040 --> 00:27:37,070

on the road they're going to meet up at

689
00:27:40,660 --> 00:27:39,050
a stop sign well the only other conflict

690
00:27:42,160 --> 00:27:40,670
we could have possibly run into is

691
00:27:43,600 --> 00:27:42,170
getting ready to go out to the pad this

692
00:27:45,430 --> 00:27:43,610
summer so we've run into a little bit of

693
00:27:48,160 --> 00:27:45,440
a conflict with that but we'll get

694
00:27:50,080 --> 00:27:48,170
around that and and the fact that we can

695
00:27:51,640 --> 00:27:50,090
manage those kind of things should allow

696
00:27:54,510 --> 00:27:51,650
us to go to the space station when they

697
00:27:57,160 --> 00:27:54,520
need us to come and with the support of

698
00:27:59,370 --> 00:27:57,170
the Congressional legislations and the

699
00:28:01,810 --> 00:27:59,380
leadership in both Virginia and Maryland

700
00:28:03,250 --> 00:28:01,820
we've been able to keep this going and I

701
00:28:05,620 --> 00:28:03,260
certainly want to thank the government

702
00:28:07,450 --> 00:28:05,630
Virginia for his support and the

703
00:28:10,180 --> 00:28:07,460
Sean Connaughton the Transportation

704
00:28:13,000 --> 00:28:10,190
Secretary and Senator Mikulski who the

705
00:28:14,620 --> 00:28:13,010
though she I think she may think this is

706
00:28:16,180 --> 00:28:14,630
part of Maryland but but it's pretty

707
00:28:18,790 --> 00:28:16,190
good clothes don't do anything through

708
00:28:20,830 --> 00:28:18,800
that's her other that's right but she

709
00:28:22,300 --> 00:28:20,840
has a lot of Marylanders who work here

710
00:28:23,710 --> 00:28:22,310
and a great deal of interest in this

711
00:28:25,570 --> 00:28:23,720
because the link between Goddard and

712
00:28:27,280 --> 00:28:25,580
Wallops and she's been tremendously

713
00:28:29,440 --> 00:28:27,290

supportive and I know that she'll be

714
00:28:32,400 --> 00:28:29,450
watching either from here or from

715
00:28:35,230 --> 00:28:32,410
Washington and encouraging her her other

716
00:28:37,510 --> 00:28:35,240
hired help to go outside and watch also

717
00:28:39,700 --> 00:28:37,520
so we think it's very important they go

718
00:28:41,170 --> 00:28:39,710
out and see this and then spread the

719
00:28:45,510 --> 00:28:41,180
word yeah we are launching from the

720
00:28:49,150 --> 00:28:45,520
Eastern Shore and when we're going east

721
00:28:51,340 --> 00:28:49,160
don't be afraid we certainly want

722
00:28:54,430 --> 00:28:51,350
Richmond to go out and look as well

723
00:28:57,040 --> 00:28:54,440
because as Frank mentioned certainly

724
00:28:58,660 --> 00:28:57,050
Governor McDonnell and secretary Sean

725
00:29:01,240 --> 00:28:58,670
Connaughton have been absolutely

726
00:29:04,930 --> 00:29:01,250
supportive but you go back for four

727
00:29:08,020 --> 00:29:04,940
governors in probably more but for

728
00:29:10,810 --> 00:29:08,030
governors 22 of which are now senators

729
00:29:12,910 --> 00:29:10,820
as well you've had a long commitment of

730
00:29:15,280 --> 00:29:12,920
support that has begun to really

731
00:29:19,000 --> 00:29:15,290
accelerate and take off under governor

732
00:29:21,520 --> 00:29:19,010
McDonald's so they ought to be proud of

733
00:29:24,520 --> 00:29:21,530
it and should go out and take a good

734
00:29:26,350 --> 00:29:24,530
look at it it's good let's go to the

735
00:29:27,970 --> 00:29:26,360
phone line before we come back here at

736
00:29:37,170 --> 00:29:27,980
the auditorium so let's go to Nick to

737
00:29:48,300 --> 00:29:47,130
all right go ahead we here okay I'd say

738
00:29:49,440 --> 00:29:48,310

what let's uh let's go ahead and take

739
00:29:51,330 --> 00:29:49,450
another question here in the auditorium

740
00:29:57,750 --> 00:29:51,340
as we start to cue that up right right

741
00:30:00,860 --> 00:29:57,760
here in the second row right side hi

742
00:30:06,720 --> 00:30:00,870
Doug moaning TMC satellite spotlight

743
00:30:08,280 --> 00:30:06,730
your first door-to-door demo to ISS you

744
00:30:09,930 --> 00:30:08,290
said that'll be a 3 to 5-day mission

745
00:30:12,750 --> 00:30:09,940
between launched and and rendezvous

746
00:30:14,640 --> 00:30:12,760
correctly in the future you can adopt

747
00:30:21,060 --> 00:30:14,650
like a six-hour door-to-door like we

748
00:30:23,580 --> 00:30:21,070
have with them progress and dragon for

749
00:30:25,740 --> 00:30:23,590
between by the time you launch to like a

750
00:30:27,690 --> 00:30:25,750
six hour ish rendezvous faster

751
00:30:29,550 --> 00:30:27,700
rendezvous window that that's a great

752
00:30:31,170 --> 00:30:29,560
objective we're going to walk first

753
00:30:33,510 --> 00:30:31,180
though and make sure that we can do this

754
00:30:36,210 --> 00:30:33,520
right once we've done that a few times

755
00:30:38,490 --> 00:30:36,220
in Frank tomorrow and Carl waltz and

756
00:30:40,290 --> 00:30:38,500
their guys proved to me they can do this

757
00:30:43,170 --> 00:30:40,300
safely then we'll start looking at

758
00:30:47,970 --> 00:30:43,180
faster opportunity so that we can get

759
00:30:50,820 --> 00:30:47,980
there right away ok let's go ahead and

760
00:30:52,530 --> 00:30:50,830
try Irene Klotz from Reuters on the

761
00:30:55,230 --> 00:30:52,540
phone if you can hear us go ahead Irene

762
00:30:57,780 --> 00:30:55,240
I can you can hear me all right we can't

763
00:31:02,100 --> 00:30:57,790

excellent go ahead right thanks very

764
00:31:04,140 --> 00:31:02,110
much I I have a few different little

765
00:31:06,180 --> 00:31:04,150
housekeeping questions I think the first

766
00:31:08,940 --> 00:31:06,190
for Frank and I scare your voice I

767
00:31:12,060 --> 00:31:08,950
wanted to know how long a sickness can

768
00:31:14,490 --> 00:31:12,070
stay in orbit this dummy the dummy crap

769
00:31:17,190 --> 00:31:14,500
that's flying I've seen a couple of a

770
00:31:20,690 --> 00:31:17,200
week to a couple of months and then also

771
00:31:24,680 --> 00:31:20,700
for the operational Cygnus spacecraft

772
00:31:28,580 --> 00:31:24,690
what what what capability does that have

773
00:31:31,380 --> 00:31:28,590
to serve for hosted payloads and other

774
00:31:35,550 --> 00:31:31,390
other possible commercial missions after

775
00:31:36,750 --> 00:31:35,560
separation from ISS thanks for the

776
00:31:39,840 --> 00:31:36,760
question area nice to hear your voice

777
00:31:44,400 --> 00:31:39,850
too brings back old memories shuttle Mir

778
00:31:46,440 --> 00:31:44,410
but the Cygnus simulator actually can

779
00:31:48,000 --> 00:31:46,450
stay in orbit as long as it wants to we

780
00:31:49,650 --> 00:31:48,010
won't have control of it once we

781
00:31:51,030 --> 00:31:49,660
separate it'll probably be up there

782
00:31:53,520 --> 00:31:51,040
about two weeks we

783
00:31:55,200 --> 00:31:53,530
leave and then should burn up pretty

784
00:31:57,240 --> 00:31:55,210
thoroughly on reentry is designed to

785
00:32:00,300 --> 00:31:57,250
completely disintegrate so it should be

786
00:32:02,400 --> 00:32:00,310
a safe situation once it has decayed in

787
00:32:06,060 --> 00:32:02,410
orbit and its main purpose is to prove

788
00:32:07,890 --> 00:32:06,070

that we can launch a payload size object

789
00:32:10,110 --> 00:32:07,900
into space it's got instrumentation on

790
00:32:11,700 --> 00:32:10,120
it too to characterize the environment

791
00:32:14,160 --> 00:32:11,710
such as acoustics vibration

792
00:32:16,110 --> 00:32:14,170
accelerations and it'll give us a good

793
00:32:18,780 --> 00:32:16,120
feel for how the separation mechanics

794
00:32:20,280 --> 00:32:18,790
work and and the separation of the

795
00:32:23,040 --> 00:32:20,290
fairing because it also has cameras

796
00:32:24,630 --> 00:32:23,050
onboard the Cygnus spacecraft itself has

797
00:32:28,020 --> 00:32:24,640
a lot of capability it's based on

798
00:32:30,270 --> 00:32:28,030
orbitals legacy of geo and Leo

799
00:32:33,150 --> 00:32:30,280
satellites that geo satellites are

800
00:32:34,950 --> 00:32:33,160
designed for up to 15 years of life and

801
00:32:37,230 --> 00:32:34,960
we have a lot of those components as a

802
00:32:39,570 --> 00:32:37,240
part of the Cygnus spacecraft a typical

803
00:32:41,070 --> 00:32:39,580
mission will be about 30 days counting

804
00:32:43,740 --> 00:32:41,080
the rendezvous the time onboard the

805
00:32:45,840 --> 00:32:43,750
station the time to do your 'but we

806
00:32:49,860 --> 00:32:45,850
could extend that to 60 or 90 at nasa's

807
00:32:51,840 --> 00:32:49,870
request however once we separate from

808
00:32:53,400 --> 00:32:51,850
the space station the spacecraft itself

809
00:32:56,190 --> 00:32:53,410
depending on its fuel load could

810
00:32:57,900 --> 00:32:56,200
probably fly easily for another year in

811
00:33:00,290 --> 00:32:57,910
terms of what the components are

812
00:33:02,610 --> 00:33:00,300
certified for so we think it's a great

813
00:33:05,280 --> 00:33:02,620

potential candidate for hosted payloads

814
00:33:07,410 --> 00:33:05,290
and we actually are negotiating for a

815
00:33:09,270 --> 00:33:07,420
couple of possibilities over the next

816
00:33:12,090 --> 00:33:09,280
few years that might take advantage of

817
00:33:14,070 --> 00:33:12,100
that capability to stay on orbit into to

818
00:33:15,750 --> 00:33:14,080
transfer data even after it has

819
00:33:18,000 --> 00:33:15,760
separated from the station so it should

820
00:33:19,620 --> 00:33:18,010
be a multi-purpose spacecraft it'll also

821
00:33:22,650 --> 00:33:19,630
be useful we think going beyond

822
00:33:25,380 --> 00:33:22,660
low-earth orbit once the exploration

823
00:33:27,270 --> 00:33:25,390
plans take shape and it's determined

824
00:33:29,340 --> 00:33:27,280
where humans are going to go next we

825
00:33:31,940 --> 00:33:29,350
certainly would be more than happy to

826
00:33:34,410 --> 00:33:31,950
compete for providing the cargo for that

827
00:33:37,920 --> 00:33:34,420
base wherever it happens to be too and

828
00:33:42,210 --> 00:33:37,930
as well as for control capability so

829
00:33:44,040 --> 00:33:42,220
it's it's got a lot of capability ok I

830
00:33:45,870 --> 00:33:44,050
want to go back here to the audience and

831
00:33:47,100 --> 00:33:45,880
then we'll ask James Dean on the phone

832
00:33:50,210 --> 00:33:47,110
to just stand by we'll come to you next

833
00:33:52,530 --> 00:33:50,220
so let's go Steven Clark in front I

834
00:33:55,400 --> 00:33:52,540
Steven Clark with a spaceflight now a

835
00:33:58,490 --> 00:33:55,410
couple of questions first for Frank

836
00:34:00,750 --> 00:33:58,500
beyond tomorrow's launch if it goes well

837
00:34:02,440 --> 00:34:00,760
what is the long pole for the first

838
00:34:04,990 --> 00:34:02,450

cigna Scott's demo

839
00:34:07,000 --> 00:34:05,000
ISS is it sounds like the hardware is

840
00:34:09,580 --> 00:34:07,010
close to getting ready is it is it

841
00:34:12,310 --> 00:34:09,590
software finding a slot in the ISS

842
00:34:14,530 --> 00:34:12,320
manifest and for Phil or Frank take us

843
00:34:16,300 --> 00:34:14,540
back a couple of years when the decision

844
00:34:17,640 --> 00:34:16,310
was made to do this test launch it

845
00:34:20,590 --> 00:34:17,650
wasn't part of the original agreement

846
00:34:23,350 --> 00:34:20,600
the how and why of adding this to the

847
00:34:27,870 --> 00:34:23,360
agreement thanks of the first vote yes

848
00:34:30,610 --> 00:34:27,880
sir as far as the schedule going forward

849
00:34:32,980 --> 00:34:30,620
right now we have virtually all the

850
00:34:34,120 --> 00:34:32,990
hardware here that we need for the cots

851
00:34:35,650 --> 00:34:34,130
demo mission there are a couple of

852
00:34:38,020 --> 00:34:35,660
components we've held off just because

853
00:34:41,110 --> 00:34:38,030
we didn't need to have them here and we

854
00:34:43,810 --> 00:34:41,120
don't need to overcrowd the hip but once

855
00:34:45,310 --> 00:34:43,820
this flight launches will be we'll have

856
00:34:46,930 --> 00:34:45,320
the ability to move some pieces around

857
00:34:50,680 --> 00:34:46,940
in the horizontal integration facility

858
00:34:52,930 --> 00:34:50,690
and start a really complete stacking of

859
00:34:54,460 --> 00:34:52,940
all of that the Cygnus spacecraft has

860
00:34:56,500 --> 00:34:54,470
been integrated as I say this in the

861
00:34:58,120 --> 00:34:56,510
process of being fueled it'll move over

862
00:35:00,760 --> 00:34:58,130
to the hiff later this week and then we

863
00:35:02,770 --> 00:35:00,770

can work towards integrating it we

864
00:35:05,670 --> 00:35:02,780
typically plan on around two to three

865
00:35:08,680 --> 00:35:05,680
months in between missions as a minimum

866
00:35:11,050 --> 00:35:08,690
partly because there are certain pieces

867
00:35:13,120 --> 00:35:11,060
of test equipment we need to move from

868
00:35:14,710 --> 00:35:13,130
one vehicle to the other in between we

869
00:35:15,940 --> 00:35:14,720
need time to have the pad refurbished

870
00:35:18,040 --> 00:35:15,950
and make sure that there's been no

871
00:35:19,990 --> 00:35:18,050
damage during a flight we need time to

872
00:35:21,730 --> 00:35:20,000
analyze the data that comes down from a

873
00:35:23,140 --> 00:35:21,740
particular flight to ensure there's no

874
00:35:25,180 --> 00:35:23,150
modifications we need to make to the

875
00:35:27,190 --> 00:35:25,190
software or the are the hardware and

876
00:35:29,320 --> 00:35:27,200
that works out to around just under

877
00:35:32,200 --> 00:35:29,330
three months and so we're looking at

878
00:35:33,610 --> 00:35:32,210
late June early July for the for the

879
00:35:38,170 --> 00:35:33,620
demo mission and we think that that's

880
00:35:40,030 --> 00:35:38,180
certainly doable and in terms of the the

881
00:35:44,380 --> 00:35:40,040
history of this flight being added to

882
00:35:46,510 --> 00:35:44,390
the to the program as both providers

883
00:35:48,100 --> 00:35:46,520
were working through the development of

884
00:35:50,980 --> 00:35:48,110
their hardware and the development of

885
00:35:53,170 --> 00:35:50,990
their ops concepts and getting ready to

886
00:35:54,700 --> 00:35:53,180
go to the station NASA made a

887
00:35:57,160 --> 00:35:54,710
determination that they would like to

888
00:36:00,130 --> 00:35:57,170

invest in some risk mitigation

889
00:36:01,540 --> 00:36:00,140
activities and asked us what we could do

890
00:36:03,700 --> 00:36:01,550
and we said well the most logical thing

891
00:36:05,410 --> 00:36:03,710
is to add a test flight so that we can

892
00:36:07,090 --> 00:36:05,420
demonstrate the entire stack before we

893
00:36:10,600 --> 00:36:07,100
actually try to carry cargo to the space

894
00:36:12,700 --> 00:36:10,610
station and so some money was added we

895
00:36:14,970 --> 00:36:12,710
also added some investment on our side

896
00:36:17,250 --> 00:36:14,980
to make sure that it worked and

897
00:36:19,470 --> 00:36:17,260
and started working towards the test

898
00:36:22,770 --> 00:36:19,480
flight as the as the first mission we

899
00:36:24,540 --> 00:36:22,780
were not initially planning to do a test

900
00:36:26,880 --> 00:36:24,550
flight because when we were awarded the

901
00:36:28,470 --> 00:36:26,890
the cots demonstration Space Act

902
00:36:30,540 --> 00:36:28,480
agreement we were a hundred million

903
00:36:32,910 --> 00:36:30,550
dollars less than the than the other

904
00:36:34,920 --> 00:36:32,920
awardee and that's we really couldn't

905
00:36:37,710 --> 00:36:34,930
afford it at that time so adding it we

906
00:36:39,270 --> 00:36:37,720
think does add some some risk mitigation

907
00:36:41,910 --> 00:36:39,280
as well as and lessons learned for

908
00:36:44,099 --> 00:36:41,920
removing moving forward towards the demo

909
00:36:47,099 --> 00:36:44,109
itself and Phil I don't if you want to

910
00:36:49,349 --> 00:36:47,109
I'll just elaborate a little bit Frank

911
00:36:50,520 --> 00:36:49,359
everything Frank said was accurate just

912
00:36:52,580 --> 00:36:50,530
to give you a little more insight and

913
00:36:55,470 --> 00:36:52,590

NASA's thinking you know our our

914
00:36:57,330 --> 00:36:55,480
situation with ISS resupply has evolved

915
00:37:00,420 --> 00:36:57,340
over time it's never one constant thing

916
00:37:02,190 --> 00:37:00,430
as we go year to year we get more

917
00:37:05,880 --> 00:37:02,200
experience with the hardware we get more

918
00:37:09,480 --> 00:37:05,890
experience with how long things take to

919
00:37:11,460 --> 00:37:09,490
either break or live and when we started

920
00:37:13,140 --> 00:37:11,470
the cots program the end of ISS wasn't

921
00:37:15,570 --> 00:37:13,150
exactly clear we knew we had another

922
00:37:17,880 --> 00:37:15,580
provider so schedule was important to us

923
00:37:20,460 --> 00:37:17,890
and so we felt like we could accomplish

924
00:37:22,650 --> 00:37:20,470
the test the test objectives with just

925
00:37:24,930 --> 00:37:22,660
the one flight initially and then as we

926
00:37:26,670 --> 00:37:24,940
got further into the program we started

927
00:37:29,250 --> 00:37:26,680
to realize how critical cargo resupply

928
00:37:32,340 --> 00:37:29,260
was going to be the shuttle lifetime was

929
00:37:36,000 --> 00:37:32,350
clearly going to be ending very soon and

930
00:37:37,859 --> 00:37:36,010
I think the importance of the cargo

931
00:37:40,230 --> 00:37:37,869
carriers kind of got elevated somewhat

932
00:37:42,270 --> 00:37:40,240
within NASA if you look in the Augustine

933
00:37:43,890 --> 00:37:42,280
report they did a very big scrub of the

934
00:37:45,780 --> 00:37:43,900
human spaceflight program there's a

935
00:37:47,340 --> 00:37:45,790
statement in the final report that said

936
00:37:49,140 --> 00:37:47,350
maybe NASA should consider additional

937
00:37:51,330 --> 00:37:49,150
investment to reduce the risk associated

938
00:37:53,280 --> 00:37:51,340

with those flights there was money put

939
00:37:55,349 --> 00:37:53,290
in to the president's budget request of

940
00:37:57,660 --> 00:37:55,359
FY 11 and then Congress appropriated

941
00:37:59,190 --> 00:37:57,670
funds to do just that was to reduce our

942
00:38:01,859 --> 00:37:59,200
risk so that we had a higher confidence

943
00:38:05,130 --> 00:38:01,869
level so what we did was we added

944
00:38:07,920 --> 00:38:05,140
content to the Space Act agreements for

945
00:38:09,870 --> 00:38:07,930
that purpose risk mitigation it's

946
00:38:13,080 --> 00:38:09,880
obviously better to have to test flights

947
00:38:14,460 --> 00:38:13,090
instead of one we negotiated with

948
00:38:15,930 --> 00:38:14,470
orbital and concurred with their

949
00:38:17,910 --> 00:38:15,940
assessment that the best thing the best

950
00:38:19,740 --> 00:38:17,920
use of that money was to add an

951
00:38:23,010 --> 00:38:19,750
additional test flight which we will

952
00:38:24,870 --> 00:38:23,020
hopefully see tomorrow and that reduces

953
00:38:26,700 --> 00:38:24,880
risk on the foot on subsequent flights

954
00:38:27,300 --> 00:38:26,710
and makes the overall confidence level

955
00:38:28,740 --> 00:38:27,310
of the program

956
00:38:30,600 --> 00:38:28,750
a little bit higher so i think it was

957
00:38:35,130 --> 00:38:30,610
money well spent orbital also

958
00:38:36,510 --> 00:38:35,140
contributed to though to to those two

959
00:38:38,970 --> 00:38:36,520
that additional mission in almost all

960
00:38:40,440 --> 00:38:38,980
the milestones that we added were

961
00:38:41,790 --> 00:38:40,450
associated with this additional test

962
00:38:43,290 --> 00:38:41,800
fight whether it be ground testing or

963
00:38:46,680 --> 00:38:43,300

something else so we thought it was a

964
00:38:48,210 --> 00:38:46,690
very prudent prudent expenditure and we

965
00:38:49,920 --> 00:38:48,220
also added a couple shuttle flights

966
00:38:51,900 --> 00:38:49,930
towards the end a couple we weren't sure

967
00:38:56,010 --> 00:38:51,910
we were going to get and that last one

968
00:38:59,190 --> 00:38:56,020
took up a lot of cargo gave us a little

969
00:39:00,870 --> 00:38:59,200
bit more flexibility in terms of

970
00:39:04,650 --> 00:39:00,880
schedule so adding this flight didn't

971
00:39:05,970 --> 00:39:04,660
turn out to be too hard okay thanks

972
00:39:07,770 --> 00:39:05,980
let's let's go back to the phone line

973
00:39:11,460 --> 00:39:07,780
with James Dean Florida today go ahead

974
00:39:14,100 --> 00:39:11,470
James thanks very much mr. culbertson

975
00:39:16,380 --> 00:39:14,110
SpaceX of course preceded you engine

976
00:39:17,880 --> 00:39:16,390
cuts and it became pretty well known

977
00:39:19,710 --> 00:39:17,890
over the past years they made at the

978
00:39:22,200 --> 00:39:19,720
station and we're also involved in

979
00:39:24,180 --> 00:39:22,210
commercial crews though you're such

980
00:39:26,280 --> 00:39:24,190
different companies for people who made

981
00:39:29,730 --> 00:39:26,290
outside aerospace circles you may not

982
00:39:31,560 --> 00:39:29,740
know you as well could you try to

983
00:39:34,290 --> 00:39:31,570
contrast the kind of company that you

984
00:39:36,300 --> 00:39:34,300
are and also the different way in which

985
00:39:41,550 --> 00:39:36,310
you went about designing antares

986
00:39:42,540 --> 00:39:41,560
compared to SpaceX's approach well not

987
00:39:46,950 --> 00:39:42,550
sure if I want to go into too much

988
00:39:48,570 --> 00:39:46,960

detail on that but but basically it's

989
00:39:50,340 --> 00:39:48,580
ironic orbital has been in existence for

990
00:39:52,860 --> 00:39:50,350
over 30 years and we've got about a

991
00:39:54,900 --> 00:39:52,870
thousand years worth of on-orbit

992
00:39:58,440 --> 00:39:54,910
experience with our satellites and

993
00:40:00,840 --> 00:39:58,450
approximately a thousand spacecraft

994
00:40:03,510 --> 00:40:00,850
rockets missiles various components that

995
00:40:05,610 --> 00:40:03,520
we have successfully deployed so we've

996
00:40:08,460 --> 00:40:05,620
been doing this for quite a while we are

997
00:40:10,380 --> 00:40:08,470
a publicly traded company we do this on

998
00:40:11,880 --> 00:40:10,390
a commercial basis and the company was

999
00:40:14,940 --> 00:40:11,890
founded on the principles of providing

1000
00:40:17,250 --> 00:40:14,950
access to space on a commercial basis

1001
00:40:19,620 --> 00:40:17,260
and Dave Thompson and the other leaders

1002
00:40:21,210 --> 00:40:19,630
in the company succeeded in that when

1003
00:40:23,960 --> 00:40:21,220
they first launched the Pegasus

1004
00:40:27,360 --> 00:40:23,970
spacecraft to carry a commercial payload

1005
00:40:29,310 --> 00:40:27,370
over 20 years ago and so we have been in

1006
00:40:31,470 --> 00:40:29,320
this business a while but we do take a

1007
00:40:32,730 --> 00:40:31,480
little bit different approach we are

1008
00:40:34,380 --> 00:40:32,740
publicly traded and we have to pay

1009
00:40:36,780 --> 00:40:34,390
attention to our shareholders and their

1010
00:40:38,310 --> 00:40:36,790
investments by the same token we want to

1011
00:40:38,950 --> 00:40:38,320
keep building our business in multiple

1012
00:40:41,410 --> 00:40:38,960
directions

1013
00:40:44,020 --> 00:40:41,420

orbital has approximately thirty six

1014
00:40:47,080 --> 00:40:44,030
hundred employees we have three basic

1015
00:40:50,010 --> 00:40:47,090
business units and we addressed the

1016
00:40:52,840 --> 00:40:50,020
market both in all three areas from

1017
00:40:56,530 --> 00:40:52,850
launch vehicles that are managed out of

1018
00:40:59,170 --> 00:40:56,540
Ron gravies group in in chandler and who

1019
00:41:00,850 --> 00:40:59,180
are responsible for the the great work

1020
00:41:03,610 --> 00:41:00,860
that's gone on getting ready for the

1021
00:41:05,470 --> 00:41:03,620
Antares launch we have the advanced

1022
00:41:07,120 --> 00:41:05,480
programs group which which I manage

1023
00:41:09,100 --> 00:41:07,130
which handles our national security

1024
00:41:10,840 --> 00:41:09,110
space as well as our human spaceflight

1025
00:41:13,270 --> 00:41:10,850
efforts including the Cygnus spacecraft

1026
00:41:16,240 --> 00:41:13,280
and then we have our space systems group

1027
00:41:19,150 --> 00:41:16,250
that is responsible for both our

1028
00:41:22,180 --> 00:41:19,160
commercial Gio sets as well as our

1029
00:41:23,290 --> 00:41:22,190
science satellites that and other civil

1030
00:41:25,210 --> 00:41:23,300
satellites that we launched for the

1031
00:41:28,960 --> 00:41:25,220
government so we have a diverse

1032
00:41:31,540 --> 00:41:28,970
portfolio and we intend to to continue

1033
00:41:33,700 --> 00:41:31,550
in business for a long time moving in

1034
00:41:35,800 --> 00:41:33,710
multiple directions this is a big part

1035
00:41:38,290 --> 00:41:35,810
of it for us and terraces are our

1036
00:41:40,900 --> 00:41:38,300
largest investment as a company and the

1037
00:41:42,850 --> 00:41:40,910
Cygnus spacecraft is our and its

1038
00:41:44,500 --> 00:41:42,860

associated cargo resupply service

1039
00:41:47,230 --> 00:41:44,510
contract is the largest contract we've

1040
00:41:49,000 --> 00:41:47,240
ever achieved so they are extremely

1041
00:41:52,060 --> 00:41:49,010
important to the future of the company

1042
00:41:54,850 --> 00:41:52,070
company and we do intend to branch out

1043
00:41:57,580 --> 00:41:54,860
in multiple areas we did kind of come

1044
00:42:00,370 --> 00:41:57,590
late to this particular activity we were

1045
00:42:01,720 --> 00:42:00,380
selected for the COS program about a

1046
00:42:03,370 --> 00:42:01,730
year and a half after the first two

1047
00:42:06,520 --> 00:42:03,380
selectees and so we've been playing

1048
00:42:08,590 --> 00:42:06,530
catch-up but we're about caught up we'll

1049
00:42:11,470 --> 00:42:08,600
find that out tomorrow I believe and by

1050
00:42:13,870 --> 00:42:11,480
the end of next year we should have an

1051
00:42:16,150 --> 00:42:13,880
additional four or five cargo missions

1052
00:42:18,570 --> 00:42:16,160
under our belt so we're going to be

1053
00:42:20,650 --> 00:42:18,580
moving fast once we get this off the pad

1054
00:42:21,910 --> 00:42:20,660
okay i want to say just one or two more

1055
00:42:23,620 --> 00:42:21,920
questions here in the auditorium before

1056
00:42:25,450 --> 00:42:23,630
I do let me just check that Nick isn't

1057
00:42:29,560 --> 00:42:25,460
still furiously hitting a mute button

1058
00:42:32,590 --> 00:42:29,570
somewhere on Nikki there Bloomberg hey

1059
00:42:35,050 --> 00:42:32,600
yeah yeah I am go ahead can you hear me

1060
00:42:36,700 --> 00:42:35,060
yeah yes we can give it's like just real

1061
00:42:38,380 --> 00:42:36,710
quickly there are pretty simple things I

1062
00:42:40,900 --> 00:42:38,390
for it to make sure that the terms of

1063
00:42:41,240 --> 00:42:40,910

the supply contract are still the same

1064
00:42:42,980 --> 00:42:41,250
as

1065
00:42:45,890 --> 00:42:42,990
they were announced this is a 1.9

1066
00:42:48,440 --> 00:42:45,900
billion dollar agreement to do a supply

1067
00:42:50,870 --> 00:42:48,450
trip does that still accurate that's

1068
00:42:54,020 --> 00:42:50,880
that's correct will do more if they want

1069
00:42:59,150 --> 00:42:54,030
us to but that's the current contract 20

1070
00:43:01,600 --> 00:42:59,160
tons okay let's go back to last two

1071
00:43:05,090 --> 00:43:01,610
questions here in the in the auditorium

1072
00:43:11,900 --> 00:43:05,100
Tarek and then we'll do one more get a

1073
00:43:15,290 --> 00:43:11,910
microphone down yep one of them to the

1074
00:43:17,180 --> 00:43:15,300
space com and I think I just have two

1075
00:43:18,920 --> 00:43:17,190
tiny little points just Frank you

1076
00:43:20,480 --> 00:43:18,930
mentioned it is the biggest investment

1077
00:43:22,970 --> 00:43:20,490
for the company and I just wanted you

1078
00:43:27,260 --> 00:43:22,980
could kind of put a number on that or

1079
00:43:29,180 --> 00:43:27,270
whatever you can share and then for bill

1080
00:43:31,580 --> 00:43:29,190
you says you did mention it's the

1081
00:43:33,650 --> 00:43:31,590
biggest rocket to launch from Wallops

1082
00:43:34,880 --> 00:43:33,660
I'm just running what size crowd you're

1083
00:43:37,250 --> 00:43:34,890
expecting it the visitor center and

1084
00:43:40,160 --> 00:43:37,260
along the beaches here thanks i don't i

1085
00:43:42,290 --> 00:43:40,170
don't know that we fully know what what

1086
00:43:44,240 --> 00:43:42,300
the size of the crowd will be in fact

1087
00:43:46,060 --> 00:43:44,250
this is kind of a trial run i think for

1088
00:43:48,230 --> 00:43:46,070

us this one probably didn't get as much

1089
00:43:49,760 --> 00:43:48,240
notification as maybe some of the future

1090
00:43:51,230 --> 00:43:49,770
flights will so we're playing this one

1091
00:43:53,930 --> 00:43:51,240
by ear but we're tied and pretty good

1092
00:43:55,760 --> 00:43:53,940
with the community and the other folks

1093
00:43:57,740 --> 00:43:55,770
around so I you know we're hoping that

1094
00:44:01,550 --> 00:43:57,750
we have enough spots lined up for

1095
00:44:04,160 --> 00:44:01,560
everybody get to get a good look several

1096
00:44:05,810 --> 00:44:04,170
hundred million and I want to echo

1097
00:44:06,800 --> 00:44:05,820
something bill said previously and

1098
00:44:10,520 --> 00:44:06,810
that's been the support of the community

1099
00:44:12,290 --> 00:44:10,530
and the local both law enforcement and

1100
00:44:14,540 --> 00:44:12,300
government officials so they had to make

1101
00:44:16,610 --> 00:44:14,550
a number of modifications to accommodate

1102
00:44:19,190 --> 00:44:16,620
us just moving our spacecraft from the

1103
00:44:21,680 --> 00:44:19,200
main base down to the island required a

1104
00:44:24,410 --> 00:44:21,690
lot of modifications to the to the route

1105
00:44:26,240 --> 00:44:24,420
moving wires and asking people to move

1106
00:44:28,340 --> 00:44:26,250
their satellite dishes back a little bit

1107
00:44:30,230 --> 00:44:28,350
and things like that parked their cars

1108
00:44:32,330 --> 00:44:30,240
on there but on the middle of the road

1109
00:44:34,340 --> 00:44:32,340
in the middle of the night but it all

1110
00:44:36,260 --> 00:44:34,350
went very well the other night and

1111
00:44:38,390 --> 00:44:36,270
and the local community I think sees

1112
00:44:41,270 --> 00:44:38,400
this as a positive it's brought a lot of

1113
00:44:44,120 --> 00:44:41,280

jobs a lot of excitement and as we are

1114
00:44:46,130 --> 00:44:44,130
here the team working and those of us

1115
00:44:47,720 --> 00:44:46,140
that are visiting go to the local

1116
00:44:50,330 --> 00:44:47,730
establishments we get a lot of positive

1117
00:44:51,590 --> 00:44:50,340
feedback in a lot of sense of yet we're

1118
00:44:53,960 --> 00:44:51,600
going we're doing something new and

1119
00:44:55,490 --> 00:44:53,970
different here and we'll try not to

1120
00:44:57,230 --> 00:44:55,500
disturb the crabs and oysters too much

1121
00:45:00,080 --> 00:44:57,240
but but I think it's a good thing for

1122
00:45:03,170 --> 00:45:00,090
the community okay take last question

1123
00:45:08,150 --> 00:45:03,180
here in the the front microphone right

1124
00:45:11,090 --> 00:45:08,160
here Jason para with wired magazine

1125
00:45:12,800 --> 00:45:11,100
first for Frank than for bill to build

1126
00:45:15,080 --> 00:45:12,810
on the comparison to SpaceX could you

1127
00:45:17,330 --> 00:45:15,090
talk a little bit about the the fairly

1128
00:45:19,970 --> 00:45:17,340
distinct difference between the rockets

1129
00:45:22,760 --> 00:45:19,980
and the spacecraft themselves SpaceX's

1130
00:45:26,540 --> 00:45:22,770
obviously going all-in house mostly in

1131
00:45:29,240 --> 00:45:26,550
house and you have chosen to go sort of

1132
00:45:31,490 --> 00:45:29,250
bridging the old space dynasties from

1133
00:45:33,290 --> 00:45:31,500
the former Soviet Union and the United

1134
00:45:38,090 --> 00:45:33,300
States and bringing a bunch of pieces

1135
00:45:40,370 --> 00:45:38,100
together if if this continues to be

1136
00:45:43,520 --> 00:45:40,380
successful do you see orbital doing more

1137
00:45:45,110 --> 00:45:43,530
in house building following like what

1138
00:45:48,770 --> 00:45:45,120

SpaceX are you going to continue to sort

1139
00:45:52,010 --> 00:45:48,780
of bring in past suppliers and

1140
00:45:56,000 --> 00:45:52,020
contractors around the world well yes

1141
00:45:57,470 --> 00:45:56,010
SpaceX does talk about being vertically

1142
00:46:00,170 --> 00:45:57,480
integrated I don't know the exact

1143
00:46:01,970 --> 00:46:00,180
percentage that they are and and they

1144
00:46:05,420 --> 00:46:01,980
try very hard to do as much as they can

1145
00:46:07,100 --> 00:46:05,430
in house I know that you mean the

1146
00:46:08,810 --> 00:46:07,110
difference in business cases more than

1147
00:46:11,180 --> 00:46:08,820
the technical aspects of the rocket I

1148
00:46:14,450 --> 00:46:11,190
assume right I mean they got nine inches

1149
00:46:18,980 --> 00:46:14,460
we got to write more from a perspective

1150
00:46:20,810 --> 00:46:18,990
of yeah I understand and orbital has

1151
00:46:22,850 --> 00:46:20,820
always been a company that's brought in

1152
00:46:25,280 --> 00:46:22,860
the best of what's available in the

1153
00:46:26,630 --> 00:46:25,290
industry for all of its projects and one

1154
00:46:30,290 --> 00:46:26,640
of the things that we have to maintain

1155
00:46:32,480 --> 00:46:30,300
as a skill in the company is managing

1156
00:46:34,610 --> 00:46:32,490
multiple teammates managing our

1157
00:46:36,260 --> 00:46:34,620
subcontractors managing our vendors but

1158
00:46:38,150 --> 00:46:36,270
also building teams where we can all

1159
00:46:41,560 --> 00:46:38,160
work together we've got a really good

1160
00:46:43,380 --> 00:46:41,570
team on this one with Aerojet use neue

1161
00:46:45,839 --> 00:46:43,390
ATK

1162
00:46:48,569 --> 00:46:45,849
tala selenia on the on the spacecraft

1163
00:46:50,400 --> 00:46:48,579

and a number of others who bring their

1164
00:46:52,950 --> 00:46:50,410
best and brightest to the to this

1165
00:46:56,089 --> 00:46:52,960
problem the hardware yes much of it is

1166
00:46:58,769 --> 00:46:56,099
legacy hardware proven in various ways

1167
00:47:01,829 --> 00:46:58,779
not proven in this specific application

1168
00:47:03,120 --> 00:47:01,839
or in this flight duration that's why

1169
00:47:05,609 --> 00:47:03,130
we're doing the test tomorrow to prove

1170
00:47:07,109 --> 00:47:05,619
that it really does work but sometimes

1171
00:47:09,539 --> 00:47:07,119
it's more cost effective to bring in

1172
00:47:11,400 --> 00:47:09,549
those kind of proven technologies at the

1173
00:47:13,650 --> 00:47:11,410
beginning to get to the initial phase

1174
00:47:15,690 --> 00:47:13,660
and then as you go forward you determine

1175
00:47:19,230 --> 00:47:15,700
what do I need to do for the long term

1176
00:47:21,509 --> 00:47:19,240
to either enhance that particular

1177
00:47:23,519 --> 00:47:21,519
technology or to bring in something else

1178
00:47:25,650 --> 00:47:23,529
to make it even better or more capable

1179
00:47:27,450 --> 00:47:25,660
and we will evaluate that as we go go

1180
00:47:28,799 --> 00:47:27,460
downstream but for now we think we've

1181
00:47:31,680 --> 00:47:28,809
got the teams working very well together

1182
00:47:33,599 --> 00:47:31,690
and working very hard to for the same

1183
00:47:36,210 --> 00:47:33,609
goal which is to safely launch this

1184
00:47:38,309 --> 00:47:36,220
rocket tomorrow and demonstrate that we

1185
00:47:42,029 --> 00:47:38,319
can launch liquids here from olives and

1186
00:47:44,940 --> 00:47:42,039
get to the station sort of the same

1187
00:47:46,920 --> 00:47:44,950
comparison obviously Kennedy is a much

1188
00:47:51,859 --> 00:47:46,930

more famous and well-known space launch

1189
00:47:55,349 --> 00:47:51,869
site do you see this is sort of Wallops

1190
00:47:58,730 --> 00:47:55,359
you know coming out party 60 70 years

1191
00:48:01,650 --> 00:47:58,740
after it came out onto the scene and

1192
00:48:04,049 --> 00:48:01,660
it's definitely been a reintroduction I

1193
00:48:07,470 --> 00:48:04,059
mean I think as a result of what has

1194
00:48:10,559 --> 00:48:07,480
taken place here with Antares and the

1195
00:48:12,720 --> 00:48:10,569
spaceport history page she kind of shed

1196
00:48:15,599 --> 00:48:12,730
new light on Wallops and what it has

1197
00:48:19,309 --> 00:48:15,609
done in the past and you know to this

1198
00:48:24,059 --> 00:48:19,319
point it's it's mainly been a research

1199
00:48:25,829 --> 00:48:24,069
location but point of fact I guess was

1200
00:48:29,220 --> 00:48:25,839
pointed out to me some time ago is that

1201
00:48:31,559 --> 00:48:29,230
you know when the commercial marketplace

1202
00:48:33,329 --> 00:48:31,569
started we actually had some of the

1203
00:48:35,700 --> 00:48:33,339
early versions coming out here with

1204
00:48:39,509 --> 00:48:35,710
Conestoga and some of the in the early

1205
00:48:41,190 --> 00:48:39,519
90s and so we've always been I guess

1206
00:48:42,809 --> 00:48:41,200
interested in that but it's not it's not

1207
00:48:46,380 --> 00:48:42,819
been something that had really taken

1208
00:48:48,870 --> 00:48:46,390
hold up until now you know and just to

1209
00:48:49,329 --> 00:48:48,880
elaborate I think what this shows you is

1210
00:48:52,059 --> 00:48:49,339
there

1211
00:48:54,999 --> 00:48:52,069
no one way to do spaceflight development

1212
00:48:56,589 --> 00:48:55,009
there's no one way to do the hardware

1213
00:48:57,910 --> 00:48:56,599

obviously the two rockets are very

1214
00:48:59,559 --> 00:48:57,920
different they're both liquid four

1215
00:49:01,269 --> 00:48:59,569
stages but other than that there's not a

1216
00:49:04,059 --> 00:49:01,279
lot of similarity between them there's

1217
00:49:06,759 --> 00:49:04,069
knows one business case there's no one

1218
00:49:11,499 --> 00:49:06,769
business approach multiple approaches

1219
00:49:13,839 --> 00:49:11,509
multiple strategies philosophies can

1220
00:49:15,370 --> 00:49:13,849
work and I think one of the beauties of

1221
00:49:17,469 --> 00:49:15,380
the cots program and also in the

1222
00:49:19,569 --> 00:49:17,479
Commercial Crew program is that we have

1223
00:49:21,219 --> 00:49:19,579
this competitive environment where we

1224
00:49:23,109 --> 00:49:21,229
can evaluate the diversity of these

1225
00:49:26,099 --> 00:49:23,119
companies and they're free to innovate

1226
00:49:28,120 --> 00:49:26,109
in the ways that they the way they can

1227
00:49:29,829 --> 00:49:28,130
which we've seen to be very very

1228
00:49:32,499 --> 00:49:29,839
effective both from a cost standpoint

1229
00:49:34,120 --> 00:49:32,509
and from a safety standpoint and from a

1230
00:49:36,489 --> 00:49:34,130
performance standpoint so that

1231
00:49:40,150 --> 00:49:36,499
competition really provides an almost

1232
00:49:45,069 --> 00:49:40,160
intangible benefit to the taxpayer to

1233
00:49:46,779 --> 00:49:45,079
NASA and to the country so that's

1234
00:49:49,269 --> 00:49:46,789
something that's really on display here

1235
00:49:51,309 --> 00:49:49,279
in this program when you see the

1236
00:49:53,859 --> 00:49:51,319
differences between our two partners

1237
00:49:56,259 --> 00:49:53,869
orbital and SpaceX we think we chose

1238
00:49:58,239 --> 00:49:56,269

pretty well because primarily what we

1239
00:49:59,709 --> 00:49:58,249
look for is a committed partner and we

1240
00:50:01,029 --> 00:49:59,719
definitely got that with both of those

1241
00:50:02,950 --> 00:50:01,039
that were willing to work through the

1242
00:50:05,709 --> 00:50:02,960
challenges and yet they all had their

1243
00:50:07,029 --> 00:50:05,719
own ways of getting up there to orbit

1244
00:50:09,160 --> 00:50:07,039
and I think that's a strength of the

1245
00:50:14,170 --> 00:50:09,170
program a strength of the approach that

1246
00:50:15,579 --> 00:50:14,180
we are pursuing for this okay on that

1247
00:50:17,019 --> 00:50:15,589
note we're gonna have to end this this

1248
00:50:19,390 --> 00:50:17,029
briefing just reminder we have another

1249
00:50:21,489 --> 00:50:19,400
briefing coming up at 3pm a few minutes

1250
00:50:22,749 --> 00:50:21,499
from now we'll hear again from NASA and

1251
00:50:24,729 --> 00:50:22,759
orbital representatives as well as a

1252
00:50:26,950 --> 00:50:24,739
weather briefing so stay tuned for that

1253
00:50:28,599 --> 00:50:26,960
on NASA TV you can find out more

1254
00:50:31,180 --> 00:50:28,609
information about the test launch at

1255
00:50:33,009 --> 00:50:31,190
nasa.gov slash orbital and all the ways

1256
00:50:36,249 --> 00:50:33,019
to follow along with it on social media

1257
00:50:38,380 --> 00:50:36,259
at nasa.gov slash connect but for now