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00:00:01,536 --> 00:00:05,176

>>Kyle Herring: Well good day, and welcome back to Mission Control.

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00:00:05,176 --> 00:00:07,506

Joining us today is Bill Lane.

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00:00:07,736 --> 00:00:15,916

He is the commercial crew program partner manager for Blue Origin, and Bill took the time

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00:00:15,916 --> 00:00:21,946

to come by and talk to us about what's going on with specifically Blue Origin,

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00:00:21,946 --> 00:00:25,226

one of the partners in the commercial crew program,

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00:00:25,226 --> 00:00:29,286

and kind of update us on what's going on there.

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00:00:29,286 --> 00:00:33,096

And, Bill, I appreciate you joining us here at the Public Affairs Council

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00:00:33,096 --> 00:00:34,796

in the station flight control room.

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00:00:35,706 --> 00:00:36,196

>>Bill Lane: Thank you, Kyle.

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00:00:36,196 --> 00:00:38,156

It's a pleasure to be here.

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00:00:38,156 --> 00:00:40,976

>>Kyle Herring: Usually, before I get into exactly what all you're doing there

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00:00:40,976 --> 00:00:45,166

with working directly with Blue Origin, but I would like to start

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00:00:45,166 --> 00:00:49,646

out with a little biographical stuff so everybody knows who you are.

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00:00:49,646 --> 00:00:54,106

Tell us a little about yourself, like how you got into NASA in the first place, you know,

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00:00:54,106 --> 00:00:56,446

how you came up, where you went to school, those types of things.

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00:00:57,126 --> 00:00:57,566

>>Bill Lane.

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00:00:57,756 --> 00:00:59,386

Okay. Well, let's see, Kyle.

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00:00:59,386 --> 00:01:04,156

I was born and raised in the Pittsburgh area, hail from a small town of Canonsburg,

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00:01:04,896 --> 00:01:10,656

and as a kid growing up in the seventies, I was inspired by the Apollo program.

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00:01:11,206 --> 00:01:15,906

Everything was about Saturn Vs for me, so going into aerospace engineering,

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00:01:16,036 --> 00:01:20,366

that's what I studied at Penn State, that was a natural fit for me to come to NASA.

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00:01:20,366 --> 00:01:26,786

That's pretty much what I've always wanted to do, and that was my dream, so here I am at JSC.

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00:01:27,326 --> 00:01:31,946

Once I graduated from Penn State, came here working in mission operations,

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00:01:32,456 --> 00:01:37,576

eventually got through control propulsion instructor training

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00:01:37,576 --> 00:01:41,486

and eventually became a flight controller in the booster world, so...

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00:01:41,486 --> 00:01:45,596

>>Kyle Herring: So you actually, you trained crews first, and then you actually moved

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00:01:45,596 --> 00:01:47,426

over to the flight control side of the house...

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00:01:47,426 --> 00:01:47,716

>>Bill Lane: That's right.

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00:01:47,716 --> 00:01:47,926

That's right.

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00:01:47,926 --> 00:01:52,326

So mission operations was a great, great background, great proving ground

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00:01:52,326 --> 00:01:54,286

to really understand shuttle systems.

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00:01:54,826 --> 00:02:00,436

And after the Columbia accident, I went over to the program office,

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00:02:00,436 --> 00:02:05,096  
worked orbiter project office as a mission  
evaluation room manager, so started working

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00:02:05,096 --> 00:02:09,866  
on the engineering side and eventually  
became a vehicle manager, and here I am today

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00:02:09,866 --> 00:02:11,636  
in the commercial crew program office.

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00:02:11,806 --> 00:02:14,666  
>>Kyle Herring: So when you  
transitioned out of shuttle

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00:02:14,666 --> 00:02:19,186  
after the flights...or did you  
transition before the end of the program?

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00:02:19,186 --> 00:02:20,766  
How did you transition over?

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00:02:20,946 --> 00:02:27,216  
>>Bill Lane: I transitioned from the shuttle  
world to the commercial crew program office just

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00:02:27,216 --> 00:02:35,236  
after the STS-132 mission, so it was  
the official last flight of Atlantis,

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00:02:35,666 --> 00:02:39,966  
which was a great experience working  
with the Atlantis team, the greatest,

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00:02:40,376 --> 00:02:42,846  
greatest team out there, so  
it was a pleasure to do that.

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00:02:43,196 --> 00:02:50,956  
After STS-132, I went to help the commercial

crew program office, working with the FAA folks

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00:02:50,996 --> 00:02:55,926  
in Washington, and then I had the  
opportunity to work with Blue Origin folks,

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00:02:56,256 --> 00:03:00,686  
so it was just towards the end of  
the program when I transitioned

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00:03:00,686 --> 00:03:02,076  
to the commercial crew program office.

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00:03:02,076 --> 00:03:06,026  
>> Kyle Herring: So the first/last  
flight of Atlantis...

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00:03:06,026 --> 00:03:06,093  
[inaudible]

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00:03:06,093 --> 00:03:06,416  
>> Bill Lane: That's right.

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00:03:06,416 --> 00:03:08,216  
As Ken Ham would put it,  
the first/last flight of...

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00:03:08,216 --> 00:03:12,376  
>> Kyle Herring: Right, right, Ken  
Ham, the commander of STS-132.

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00:03:12,836 --> 00:03:13,516  
That's great.

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00:03:14,016 --> 00:03:18,536  
Well now, you know, you transitioned  
over to kind of a new program

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00:03:18,536 --> 00:03:22,796

where we've spent the whole week, and we will spend the whole week talking

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00:03:23,266 --> 00:03:28,436  
about the commercial crew program, and, of course, this is a great setting because we're

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00:03:28,436 --> 00:03:32,276  
in the International Space Station flight control room, and, of course,

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00:03:32,276 --> 00:03:36,196  
that's what the commercial crew program is all about right now is, you know,

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00:03:36,676 --> 00:03:41,916  
developing vehicles that could deliver crews to and from the International Space Station.

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00:03:41,916 --> 00:03:49,966  
So tell us what a partner manager, you know, that role is for you as one of the, I guess,

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00:03:49,966 --> 00:03:55,606  
seven partner managers that are in the space act agreement part of the program right now.

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00:03:55,966 --> 00:03:56,386  
>>Bill Lane: Okay.

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00:03:57,466 --> 00:04:00,846  
So that's a great lead in with the work we have to do

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00:04:00,846 --> 00:04:08,276  
to establish a US-based human space flight access to our International Space Station.

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00:04:08,376 --> 00:04:15,406  
As a partner manager, I lead a small

team, it's called an insight team,

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00:04:15,686 --> 00:04:19,636

Misty Snopkowski is my deputy manager,  
she hails from Kennedy Space Center,

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00:04:20,086 --> 00:04:22,756

and my technical integration  
lead is Bill Hill Junior,

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00:04:22,756 --> 00:04:25,156

who is also from the Kennedy Space Center.

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00:04:25,156 --> 00:04:32,346

So the three of us lead the insight team that  
essentially works with each commercial partner.

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00:04:32,416 --> 00:04:39,636

In this case, we work with Blue Origin, and  
we work with them on a daily and weekly basis

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00:04:39,636 --> 00:04:46,346

to help them get through some of the  
technical requirements that we have

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00:04:46,346 --> 00:04:48,106

for our human space flight capability.

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00:04:48,486 --> 00:04:55,496

We monitor their progress towards milestones,  
and we make recommendations to the program

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00:04:55,496 --> 00:05:01,066

on their, on their milestone performance, as  
well as participate in monthly reviews with them

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00:05:01,066 --> 00:05:03,146

and quarterly reviews with the program, so...

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00:05:03,206 --> 00:05:04,546

>>Kyle Herring: That's what I was going to ask...

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00:05:04,546 --> 00:05:06,336

>>Bill Lane: We're kind of the front face of NASA.

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00:05:06,336 --> 00:05:11,326

We are the front line, and we're involved with the commercial partners,

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00:05:11,696 --> 00:05:18,626

in this case with Blue Origin, we, as often as we can, get to the Seattle area to participate

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00:05:18,626 --> 00:05:21,736

in activities at the plant location with the Blue Origin personnel.

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00:05:22,296 --> 00:05:26,266

And one of the biggest things that we do is provide some

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00:05:26,266 --> 00:05:28,556

of the NASA expertise in lessons learned.

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00:05:28,586 --> 00:05:33,486

Flying this shuttle for over 30 years, we have a lot of experience with a lot of the systems...

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00:05:33,486 --> 00:05:33,776

>>Kyle Herring: Right.

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00:05:34,066 --> 00:05:39,826

>>Bill Lane:...that the commercial partners are maybe a little bit newer in working with some

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00:05:39,826 --> 00:05:43,456

of the human-rated systems, so we

provide a lot of lessons learned with,

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00:05:43,456 --> 00:05:46,006

through technical interchanges  
with these companies

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00:05:46,006 --> 00:05:50,436

so that they can have some quality time  
with our experts that have been doing this,

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00:05:50,626 --> 00:05:53,246

often times some of the original  
designers of some of these systems.

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00:05:53,246 --> 00:05:55,926

>>Kyle Herring: Yeah, well I was going to  
ask you about, you know, how you, you know,

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00:05:56,556 --> 00:06:01,176

these companies are, some of them new  
and obviously in a different world

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00:06:01,176 --> 00:06:04,656

than the government, so how  
do you integrate yourself

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00:06:04,846 --> 00:06:08,656

with these companies, and  
how do they receive that?

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00:06:09,386 --> 00:06:10,386

>>Bill Lane: That's a great question.

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00:06:10,386 --> 00:06:14,396

That's where some of the softer  
skills come in, as Covey would say,

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00:06:14,396 --> 00:06:16,356

to be understood, one must first understand.

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00:06:16,356 --> 00:06:17,856

So that's kind of...

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00:06:17,856 --> 00:06:17,923

>>Kyle Herring: [Laughter]

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00:06:17,923 --> 00:06:21,766

>>Bill Lane: You have to understand where the companies are coming from, and you try to echo

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00:06:21,766 --> 00:06:23,596

where the government is coming from.

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00:06:23,596 --> 00:06:28,446

For example, a private company can often times move a lot faster than the government

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00:06:28,806 --> 00:06:34,586

when it comes time to making risk trades, making technical decisions, making design decisions,

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00:06:35,066 --> 00:06:41,136

and when it comes time to, let's say, sharing data, it will often take time for the government

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00:06:41,166 --> 00:06:45,406

to follow the proper processes to release data to some of these companies.

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00:06:45,606 --> 00:06:50,476

So it's putting yourself in their shoes and trying

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00:06:50,476 --> 00:06:53,306

to help them understand where we're coming from, so...

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00:06:54,596 --> 00:06:55,466

>>Kyle Herring: All right.

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00:06:55,536 --> 00:07:03,756

Well now you're working specifically with Blue Origin, and you said they're up in Seattle area,

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00:07:03,976 --> 00:07:08,896

and you also mentioned, you know, what people may not understand, what milestones are,

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00:07:08,896 --> 00:07:12,536

we know what milestones are, but how does that all work in terms

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00:07:12,536 --> 00:07:14,416

of their space act agreement with NASA?

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00:07:14,416 --> 00:07:18,356

Because space act agreements, we work with those a lot, but we're kind of doing,

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00:07:18,356 --> 00:07:22,136

it's a new way of doing business with the commercial crew program and, of course,

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00:07:22,596 --> 00:07:26,446

your focus specifically with that company, right?

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00:07:27,146 --> 00:07:27,416

>>Bill Lane: Right.

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00:07:27,846 --> 00:07:30,836

So in the world of space act agreements, as you know,

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00:07:30,836 --> 00:07:35,686

we do not levy requirements to their technical designs.

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00:07:36,046 --> 00:07:43,576

What we do is, we partner the entrance and exit criteria or the success criteria as well

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00:07:43,576 --> 00:07:46,346

as the milestone dates and the payment amounts.

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00:07:46,776 --> 00:07:54,176

So as the insight team, we will work with the partners to ensure that they're on track

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00:07:54,476 --> 00:07:56,006

to make some of these milestones.

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00:07:56,006 --> 00:07:59,416

For example, in the space vehicle, which we have a picture

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00:07:59,416 --> 00:08:01,706

of here, we can see in a little while...

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00:08:02,036 --> 00:08:03,406

>>Kyle Herring: Yeah, they've got it up for you...

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00:08:03,716 --> 00:08:07,546

>>Bill Lane: The space vehicle, the first milestone we had was the mission concept review.

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00:08:08,146 --> 00:08:13,606

So we sat down and reviewed the entrance criteria, which was Blue Origin providing us

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00:08:13,606 --> 00:08:18,776

with several documents to review, like the draft copy of the mission concept

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00:08:18,776 --> 00:08:26,596

or the mission operations, ConOps, and draft interface documentation.

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00:08:26,596 --> 00:08:31,916

We would review those, sit down as a joint NASA and Blue Origin team

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00:08:31,916 --> 00:08:36,356

to review the success criteria to ensure that, for example,

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00:08:36,466 --> 00:08:39,526

one of the criteria was that the mission was feasible.

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00:08:39,716 --> 00:08:43,906

So we sat down and said, based on your current designs, where you're at in this design cycle

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00:08:43,906 --> 00:08:46,066

at the mission concept review, is it feasible.

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00:08:46,496 --> 00:08:50,406

So we worked through that, and we eventually got to a point, we said, everyone is in agreement,

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00:08:50,406 --> 00:08:55,236

it's a feasible mission, and we moved on and accepted the milestone.

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00:08:55,816 --> 00:08:59,696

A little bit later, towards the end of CCDev-2,

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00:09:00,356 --> 00:09:04,026

we will have the space vehicle system requirements review,

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00:09:04,076 --> 00:09:08,686

so it will be a very similar, or what we call the SRR, it will be a very similar review

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00:09:08,686 --> 00:09:15,676

where Blue Origin provides us with the necessary documentation, we review it,

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00:09:15,676 --> 00:09:19,946

and sit down as a team and review the success criteria to make sure

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00:09:19,946 --> 00:09:21,676

that we agree that the milestone has been met.

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00:09:21,956 --> 00:09:26,556

>>Kyle Herring: Can you talk about some of the specific milestones that have been met and kind

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00:09:26,556 --> 00:09:30,186

of what's ahead for Blue Origin as we move forward?

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00:09:30,376 --> 00:09:33,266

>>Bill Lane: So there are three efforts for Blue Origin.

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00:09:33,266 --> 00:09:35,536

The first is space vehicle that we mentioned.

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00:09:35,926 --> 00:09:40,076

The second is what's called their engine TCA.

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00:09:40,166 --> 00:09:42,966

TCA is thrust chamber assembly.

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00:09:43,446 --> 00:09:46,806

Blue Origins is developing their own first-stage engine,

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00:09:47,336 --> 00:09:52,416

and this thrust chamber assembly goes a long way in their development,

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00:09:52,416 --> 00:09:59,996

so we are funding milestones to provide testing of that engine, of that thrust chamber assembly.

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00:10:00,496 --> 00:10:06,326

The first milestone that we completed was the test plan review, and that's already behind us.

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00:10:07,106 --> 00:10:11,476

We agreed on that success criteria, so that one went well.

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00:10:12,076 --> 00:10:17,306

The next one is the testing of that thrust chamber assembly.

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00:10:17,306 --> 00:10:21,216

That will be done at the Stennis Space Center and...

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00:10:21,216 --> 00:10:23,456

>>Kyle Herring: Uniquely qualified to do that type of testing...

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00:10:23,456 --> 00:10:25,636

>>Bill Lane: Uniquely qualified to do that type of testing, yes.

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00:10:25,636 --> 00:10:25,786

>>Kyle Herring: All right.

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00:10:25,786 --> 00:10:28,246

>>Bill Lane: They have much larger stands that can accommodate some

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00:10:28,246 --> 00:10:30,506

of these, some of these larger engines.

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00:10:30,956 --> 00:10:37,176

And once we start testing, then their final deliverable will be the quick-look test report

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00:10:37,346 --> 00:10:42,286

to NASA, so that will be a thrust chamber assembly work that we have to do.

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00:10:42,586 --> 00:10:46,556

And the third effort is what's called a pusher escape motor.

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00:10:46,556 --> 00:10:55,346

This is a solid rocket motor that is intended to mount underneath the vehicle to use

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00:10:55,346 --> 00:11:00,456

as an escape motor, and we will go through several rounds of testing.

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00:11:01,196 --> 00:11:04,056

First, we have to deliver the test vehicle,

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00:11:04,276 --> 00:11:07,226

and that is one of the milestones, one of the paid milestones.

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00:11:07,676 --> 00:11:11,626

Then we'll conduct a ground test of the solid rocket motor,

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00:11:12,186 --> 00:11:16,456

and then we will perform a pad escape test where the motor is actually mounted

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00:11:16,946 --> 00:11:19,726

to the pad escape test vehicle and launched.

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00:11:20,986 --> 00:11:25,006

So those are some very exciting pusher escape milestones ahead of us.

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00:11:25,476 --> 00:11:27,816

>>Kyle Herring: We're visiting with Bill Lane.

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00:11:27,816 --> 00:11:35,506

He's the partner manager for Blue Origin  
as the NASA liaison to that company

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00:11:35,696 --> 00:11:37,836

through the commercial crew program office.

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00:11:38,306 --> 00:11:39,646

You mentioned excitement.

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00:11:40,416 --> 00:11:42,436

That was one of the questions  
that I had for you there.

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00:11:42,436 --> 00:11:48,916

There seems to be a lot of excitement, you know,  
if you're internal and maybe even external,

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00:11:48,916 --> 00:11:52,676

but I see this, you know,  
going into meetings and stuff.

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00:11:52,676 --> 00:11:54,726

Do you see that with all the companies?

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00:11:54,726 --> 00:11:58,986

Do you see that on both sides  
of the fence, you know,

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00:11:58,986 --> 00:12:01,276

that you're integrated with  
this particular company?

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00:12:02,046 --> 00:12:05,436

>>Bill Lane: I do see it on both sides of

the fence now that we're getting closer

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00:12:05,436 --> 00:12:09,106

to some milestones where you're actually seeing hardware perform.

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00:12:09,186 --> 00:12:16,296

A lot of folks are quite excited on both sides, so we can't wait, you know,

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00:12:16,336 --> 00:12:20,576

April and May are going to be very busy for us, so we're looking forward to it.

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00:12:20,576 --> 00:12:21,256

>>Kyle Herring: Yeah, exactly.

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00:12:21,326 --> 00:12:24,246

I guess using the word fence may not be the right thing anymore

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00:12:24,246 --> 00:12:27,756

because when you use the word integration, there really is no fence any longer

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00:12:27,756 --> 00:12:28,946

because you actually are working...

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00:12:28,946 --> 00:12:29,426

>>Bill Lane: I don't see a fence.

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00:12:29,426 --> 00:12:30,456

>>Kyle Herring: ...so closely together, right?

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00:12:30,506 --> 00:12:31,636

>>Bill Lane: Right, just different badges.

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00:12:32,706 --> 00:12:36,846

>>Kyle Herring: You know, the last thing that

I was going to ask you is, and, you know,

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00:12:36,846 --> 00:12:41,996

everybody gets this a lot, but, you know, how do you describe what you do

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00:12:42,066 --> 00:12:44,866

to people outside, like your family and friends?

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00:12:45,106 --> 00:12:47,526

>>Bill Lane: How do I describe my job to family and friends?

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00:12:48,036 --> 00:12:57,556

I call it a technical integration role where my job is to seamlessly and effortlessly make sure

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00:12:57,556 --> 00:13:03,866

that the companies are successful with what we've asked them to do,

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00:13:03,866 --> 00:13:09,536

these space act agreements, and it's also a liaison role with working

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00:13:09,666 --> 00:13:15,366

on the people skills part of it to fully integrate teams so that we function as one team.

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00:13:16,146 --> 00:13:17,316

>>Kyle Herring: Well that's great.

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00:13:17,316 --> 00:13:20,256

I really appreciate you stopping by.

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00:13:20,256 --> 00:13:25,996

This is a perfect setting to kind of tie the commercial crew program with what's going

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00:13:25,996 --> 00:13:28,816  
on here in the station flight control room.

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00:13:28,946 --> 00:13:34,576  
Bill Lane, the partner manager for Blue Origin  
within the commercial crew program office.

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00:13:34,576 --> 00:13:36,156  
Bill, thanks again for stopping by.

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00:13:36,276 --> 00:13:36,526  
>>Bill Lane: Okay.

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00:13:36,686 --> 00:13:37,066  
Thanks, Kyle.