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00:00:00,060 --> 00:00:04,440
We're at one of the largest facilities
built by NASA, as a matter of fact, we're

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00:00:04,440 --> 00:00:09,280
in the trenches. No, no, the trench, the flame trench.

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00:00:13,420 --> 00:00:18,080
I'm Yves Lamont and we're checked in at
the Kennedy Space Center, our multi-user

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00:00:18,090 --> 00:00:22,289
spaceport. We have our boarding pass to
the launchpad and with me today is

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00:00:22,289 --> 00:00:26,640
Regina Spellman. Hi Regina. Hi, how're you doing today? Regina Spellman is the Launchpad Project

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00:00:26,640 --> 00:00:29,670
Manager and she's gonna tell us a little
bit more about the launchpad.

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00:00:29,670 --> 00:00:33,750
Yeah, well today you're here at Launch
Complex 39b. Reason it's B is that we

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00:00:33,750 --> 00:00:38,160
have two pads actually at Kennedy Space
Center, we have 39A and 39B. These were

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00:00:38,160 --> 00:00:42,059
both built back in the 60s for the
Saturn program. They're just over 50

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00:00:42,059 --> 00:00:45,120
years old. Pad A was completed first and
that was really the workhorse during the

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00:00:45,120 --> 00:00:48,660

Saturn program and then B was built two years afterwards. We did see the launch

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00:00:48,660 --> 00:00:53,039

of Apollo 10 out here. A lot of people are familiar with the Apollo 11 from the

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00:00:53,039 --> 00:00:57,360

movies, but Apollo 10 was the dry run for Apollo 11 and that launched from right

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00:00:57,360 --> 00:01:01,020

here where we're standing. After the Apollo program, Saturn program we went

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00:01:01,020 --> 00:01:05,309

into the Space Shuttle program and we modified the pad to support the Space

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00:01:05,309 --> 00:01:08,729

Shuttle. This pad saw 53 Space Shuttle launches.

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00:01:08,729 --> 00:01:13,470

Wow. On the last of them was STS-116, a beautiful night launch from that was the

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00:01:13,470 --> 00:01:18,119

last one from here. So where exactly on the pad are we? Right now, where you're

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00:01:18,119 --> 00:01:21,630

standing is in the flame trench area, or on the apron of the flame trench. If you

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00:01:21,630 --> 00:01:25,229

look back behind us in the flame deflector, flame trench area, the brick

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00:01:25,229 --> 00:01:29,490

walls are the trench. The rocket actually

sits above this pad surface on the

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00:01:29,490 --> 00:01:33,180

Mobile Launcher. So all the exhaust from the rocket goes through an opening in

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00:01:33,180 --> 00:01:36,299

the Mobile Launcher down onto the deflector, what looks like the darker

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00:01:36,299 --> 00:01:41,850

wall behind us, that's actually a metal deflector, an upside down V shape, and all

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00:01:41,850 --> 00:01:45,780

that exhaust comes down and impinges on that deflector and gets redirected out

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00:01:45,780 --> 00:01:49,259

into the ocean, basically down this pathway that we're standing on. And the

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00:01:49,259 --> 00:01:53,939

reason we have to do that is because the SLS will experience 9 million pounds of

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00:01:53,939 --> 00:01:57,659

thrust. That exhaust will get, it's not like your car exhaust, that exhaust will

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00:01:57,659 --> 00:02:03,090

get up to 2,200 degrees Fahrenheit and that is hot even for Florida. Now I see

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00:02:03,090 --> 00:02:07,390

three tall towers with those long poles on top of them.

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00:02:07,390 --> 00:02:11,830

What exactly are those? Yeah, so Florida is

very active lightning, it's known as the

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00:02:11,830 --> 00:02:14,950

lightning capital of the world, so we have erected these lightning towers.

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00:02:14,950 --> 00:02:18,400

These towers are so tall because any vehicle that can leave the Vehicle

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00:02:18,400 --> 00:02:22,030

Assembly Building could be protected by these lightning protection towers. The

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00:02:22,030 --> 00:02:26,050

towers are 600 feet tall and they support a catenary system of wires that

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00:02:26,050 --> 00:02:30,670

actually provide that protection over the pad surface. So is this where the

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00:02:30,670 --> 00:02:34,720

Mobile Launcher comes on to the pad? It is. The Crawler brings the Mobile

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00:02:34,720 --> 00:02:37,750

Launcher from the Vehicle Assembly Building, down the crawlerway and it

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00:02:37,750 --> 00:02:41,080

actually arrives at the pad and comes up the hill to get on top of the pad

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00:02:41,080 --> 00:02:45,550

surface. The crawler brings the Mobile Launcher over the flame trench and you

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00:02:45,550 --> 00:02:48,459

can see there's a crawler track here and

there's one on the other side. It

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00:02:48,459 --> 00:02:52,540

straddles the flame trench. When the crawler sits the Mobile Launcher down it

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00:02:52,540 --> 00:02:55,870

gets out of the way and the pad takes it from there. There's a tower behind us.

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00:02:55,870 --> 00:03:00,070

This is a 400,000 gallon water tower. That's about the same size as 27

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00:03:00,070 --> 00:03:03,370

average-sized swimming pools, if you can imagine. And all that water gets

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00:03:03,370 --> 00:03:07,360

dumped out in less than 25 seconds. And the purpose of that water is to keep all

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00:03:07,360 --> 00:03:11,739

of this structure cool, but more importantly, it also prevents the sound

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00:03:11,739 --> 00:03:16,000

wave from the vehicle. If you think of nine million pounds of thrust, how loud

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00:03:16,000 --> 00:03:19,510

that must be, and exhausting from the vehicle that sound wave could bounce

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00:03:19,510 --> 00:03:24,220

back off of the structural steel of the Mobile Launcher and reflect back onto

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00:03:24,220 --> 00:03:28,690

the launch vehicle and cause damage. But

the water that's going into the exhaust

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00:03:28,690 --> 00:03:33,820

hole helps to dampen that. Wow,
so essentially there really is no safe

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00:03:33,820 --> 00:03:38,709

place on the pad right before launch. Not
at all, you need to be several miles away.

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00:03:38,709 --> 00:03:42,250

Our launch control system is about four
miles from here and that's about is

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00:03:42,250 --> 00:03:46,030

where you want to be on launch day, as
close as you want to get. So how do the

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00:03:46,030 --> 00:03:50,290

astronauts get up to the rocket when
they get to the pad? So the Astro Van

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00:03:50,290 --> 00:03:54,579

actually brings the astronauts to the
pad and they will leave the Astro Van

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00:03:54,579 --> 00:03:59,110

and get on to these elevators. These
elevators take them up to the Mobile

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00:03:59,110 --> 00:04:02,590

Launcher and then there's another
elevator that takes them all the way up

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00:04:02,590 --> 00:04:07,280

to the crew access arm and they cross
the crew access arm and enter into the Orion capsule.

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00:04:07,280 --> 00:04:10,850

Well, thank you Regina for coming out and

sharing all this knowledge with us about

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00:04:10,850 --> 00:04:13,100

the pad.

I'm Yves LaMotte from the Kennedy Space