committee back into session. I would like to
note for the record that my vice-chair proxy,
Karen Celestino-Horseman, has excused herself
from the proceedings taking care of some
other business.

So we still have a quorum. We're good
to go. We're going to continue on. Voting
System Technical Oversight Program report.

I now recognize Dr. Jay Bagga and
Dr. Bryan Byers of Ball State University,
which administers the voting system technical
oversight program, also known as VSTOP, for
presentation concerning voting systems.

Dr. Bagga and Dr. Byers, would you
like to make any general introductory remarks
before we proceed?

MR. BAGGA: Thank you. Mr. Chairman
and members of commission, we would like to
begin by introducing the VSTOP team. I'm Jay
Bagga, co-Director of the working system
technical oversight program, or VSTOP.

With me is Dr. Bryan Byers, also
co-Director of VSTOP.

To my far right Mr. Mani Kilaru. He's
the IT specialist for VSTOP.
And to my right is Mr. Jordan Jarnagin, elections system certification specialist for VSTOP. We are pleased to be here.

MR. OKESON: Thank you. For the purposes of the court reporter, would you mind spelling your names.

MR. BAGGA: Jay Bagga. J-a-y, B-a-g-g-a.

MR. OKESON: Thank you.

DR. BYERS: Bryan Byers. B-r-y-a-n, B-y-e-r-s.

MR. KILARU: Mani Kilaru. M-a-n-i, K-i-l-a-r-u.

MR. OKESON: Thank you.

MR. JARNAGIN: Jordan Jarnagin. J-o-r-d-a-n, J-a-r-n-a-g-i-n.

MR. OKESON: Thank you.

MR. BAGGA: So we have a number of reports that we presented to this commission. And we would like to begin with the first one, which is the approval to change orders or ECUs for election systems and software.

And Dr. Byers reminds me that I arrived late and I was not oathed.
MR. OKESON: Oh, sworn in. Co-Counsel Simmons, would you.

MR. SIMMONS: Raise your right hand, say "I do" after the administration of the oath. Do you solemnly swear or affirm under the penalties and perjury that the testimony you're about to give the Indiana Election Commission is the truth, the whole truth, and nothing but the truth? Say "I do."

MR. BAGGA: I do.

MR. SIMMONS: Thank you.

MR. OKESON: And thank you for making that a point.

MR. BAGGA: Thank you.

MR. OKESON: Proceed.

MR. BAGGA: So the first report is an ECU report. And (indiscernible) change order report for a number of components of EVS voting systems.

In this first report, which was submitted on March 11, 2019, there are four ECU983, ECU996, ECU1004, and ECU1005.

And all of these ECUs and (indiscernible) change orders are de minimis
changes, which are minor changes which do not affect materially the functionality of the voting system. The determination that these are de minimis is made by the voting system testing lab.

And to your report, you will see attached reports from VISTAL. These are de minimis changes. The first change, 983, applies to the voting system component DS200. It has changed the texture of the housing seams for applying security seams.

The other three ECUs, 996, 1004, and 1005, all have to do with switching from printers to newer versions. The older versions are going end-of-life.

In the VS450 component for 996, the modification is to switch from Dell-S2810dn printer to B431dn printers. But VSTOP notes that in this ECU, the printers to which we are moving on are also going to become end-of-life.

So, therefore, we are placing some limitations on the approval of the ECU. VSTOP recommends that the approval of ECU have the following limitations for ECU996,
that this approval be granted only to those components which have current units of DS415 in Indiana. The replacement cannot be used with future purchases of DC450s.

And also that this replacement be allowed only for one year since the new printers will, again, be going end-of-life. They could continue to be used, but they could not be used as replacement parts after one year. VSTOP recommends that the commission approve these ECUs.

MR. OKESON: Co-Director King.

MR. KING: Yes. Mr. Chairman, members of the commission, in preparing the material for this meeting, we understood that there was another ECU1000.

MR. BAGGA: That will be coming subsequent.

MR. KING: You may want to present so that the commission can consider these.

MR. BAGGA: It looks like there is one motion for all the ECUs. So it should all be presented together. May I ask Dr. Byers to present ECU1000?

MR. OKESON: Co-Director Nussmeyer, do
you have anything else to add?

MS. NUSSMEYER: I don't, Mr. Chairman.

Thank you.

MR. OKESON: Go ahead. Thank you.

DR. BYERS: Thank you, Chairman,

members of the commission. ES&S also
formally requested the approval of an ECO for
a specific voting system. This particular
ECO was submitted on February 1, 2019. It is
ECO1000.

It was deemed by the voting system
testing laboratory as de minimis. It affects
the voting system EVS5240 and the component
DC200, specifically. And what they are
wishing to do is to change the material for
the ballot box that is used with that
particular unit to -- from a corrugated
plastic to an ejection-molded ABS plastic to
increase rigidity.

The members of the VSTOP team have
reviewed this ECO. And the supporting
documents from the VISTAL, which are attached
to your report -- copies of your report. And
this -- the VSTOP team finds that this ECO is
in compliance with the requirements for de
minimis change to hardware components.
And it only applies to the specific
ES&S voting system noted earlier that is
the EVS5240 and DS200 component. The
ES&S voting system EVS5240 is certified.
And this ECO was approved by the
election assistance commission, EAC, on
February 19, 2019.
VSTOP recommends approval of this ECO.
MR. OKESON: Is there anyone present
who would like to speak on these matters?
DR. BYERS: We notified
representatives from ES&S that these were
going to be handled today. However, we are
not aware of -- that they are here.
MR. OKESON: So discussion. Any
questions? Is there a motion to pass these?
SPEAKER: I move to approve the ECOs.
MR. OKESON: I guess it would be is
there a motion to adopt these VSTOP
recommendations for approval of the
engineering change orders 983, 996, 1004,
1005 described in VSTOP's reports as
modifications to the EVS? All of those
numbers.
SPEAKER: Yes. In fact, I move that.

MR. OKESON: Thank you. Second?

SPEAKER: I'll second.

MR. OKESON: Is there any further discussion? Any questions? Co-Director King, do you have anything?

Having heard no further discussion, a vote on the motion. All those in favor say "aye."

ALL TOGETHER: Aye.

MR. OKESON: Hearing no opposed, motion carried and is adopted.

What are we on? MicroVote next?

MicroVote EMS 4.3 direct recording voting system application and report. Dr. Bagga and Dr. Byers, please proceed with your comments and any modification information.

MR. BAGGA: Thank you, Mr. Chairman and members of commission. This report concerns MicroVote EMS 4.3. A system that VSTOP field-tested at Ball State University on June 26, 2019.

VSTOP conducted tests on this micro-vote EMS. There is a modification that's being brought into this system as part
of this report. And that modification concerns a VVPAT or a voter verifiable paper audit trail component.

What that does is it's an attachment that is attached to the (indiscernible) panel and the VVPAT component produces a paper trail. So it's a paper record of the vote that the voter votes, and the voter is able to see her paper record behind the glass window.

And Mr. Chairman and members of the commission, there are photographs in the attached report where you would see -- you would have seen copies of photographs of VVPAT attachment and the paper component -- the paper record of the vote that appears.

Our test included verifications of all the required elements of the Indiana code regarding voting systems as well as ADA compliance affirmation from the vendor.

We also conducted mock elections of the system, which included the ID-approved test case scenarios for straight party voting. And other tests were conducted on the VVPAT. And we verified that the VVPAT
paper record matches with the record that the
voter votes on.

VSTOP also reviewed the VISTAL lab
tests submitted by MicroVote. This system is
compliant with the VVSP or the voluntary
voting system guidelines 2005. So we
described the VVPAT attachment. The VVPAT
attachment also allows a voter to rectify her
record in case a voter finds that she has
made an error, and a voter can wipe that
paper record and go back and correct her
record, and then print another copy. And
that copy is then saved as the cast ballot.

So the VVPAT system consists of a
number of components, which of course include
the DI panel and the associated components.
And they're listed on page 2 of the report.
And also it is run by several pieces of
software. And the software versions are also
listed on page 2.

During our field test, there was a
number of findings that we would like to
report on. When we did the test on June
26th, one of those findings is that -- let me
go to that page. That the line of sight for
VV pack equipment was not clearly visible in case of some voters who would vote in a standing position.

So a voter can vote while standing. Or a voter can also vote while sitting on a chair, especially for the (indiscernible) compliance voters. And we tested it in both scenarios. So we made a recommendation to MicroVote, and we asked a question whether this VVPAT unit can be adjusted or tilted so that the voter has a better line of sight to see the paper record.

And we heard that onset of the affirmative that the unit can be tilted. What we would recommend in our recommendation is that there be proper training of the poll records and election officials to the proper functioning of the VVPAT and making sure that the VVPAT is installed appropriately. And that the poll records and election officials are aware in case there's a refill needed for the paper roll on which paper rolls are printed.

We've been informed by VSTOP that there are a sufficient number of paper votes
that can be printed to last an election day.

But if the paper roll were to run out,
there's an easy process that VSTOP has solved
where the roll can be changed.

As the last part of our report, we
also mention that a number of de minimis
modifications have been made to this system.
And when we tested the system, we tested the
prototype system. We did not see those
modifications. But then we received the
report from the lab that those modifications
are de minimis.

And I will describe those di minimis
modifications next. One is finger grips on
the VVPAT enclosure, which will help poll
workers to handle this VVPAT component
easily.

And the second modification is a
slight repositioning of the security bracket
which is underneath the bottom of the RJ45
port so that the wire ties security seal
would better cover the RJ45 connector and
prevent it from possible removal during
voting. That's an adjustment to where the
wire port is located.
So with these two de minimis changes
and with the test that we have done, and with
the recommendation including training and the
proper adjustment of the VVPAT unit, VSTOP
recommends that the system be approved.

MR. OKESON: Is there anybody from
micro-vote here?

DR. BYERS: Yes.

MR. OKESON: Would you like to offer
any testimony on this matter?

MR. HIRSCH: Not unless there's a
question that you have.

MR. OKESON: I have a couple
questions. If I might.

MR. HIRSCH: Yeah, sure.

MR. OKESON: Number one, I heard
Dr. Byers -- you state that the -- sorry.

Before you answer my question, will you state
your name and spell it.

MR. HIRSCH: My name is Bernie Hirsch.
B-e-r-n-i-e, H-i-r-s-c-h. I'm the CIO for
MicroVote. And I was sworn in at the
beginning of the meeting.

MR. OKESON: Dr. Byers mentioned that
you have an opportunity to review the paper
on the vote. And if it is incorrect, you can
go back and vote again -- vote again may not
be the right way to say it -- but go back and
make a correction to that vote. How many
times can you do that?

MR. HIRSCH: So you can actually make
corrections to your ballot an indefinite
amount of times until you're satisfied with
it before you print it out.

MR. OKESON: Co-Director King.

MR. KING: Mr. Chairman, yeah, let me
clarify. Indiana law effective July 1st of
this year does place some limitations on
that. But what Mr. Hirsch has testified to
is what the system is capable of doing.

But what's permitted by law is for a
voter to have one opportunity in most cases
to correct their ballot and see a new paper
trail. But there is no limitation if a voter
is disabled and maybe having trouble
operating the system or casting their ballot
or if there is a technological problem with
the system.

MR. OKESON: Is there any way to
monitor that, or to -- enforce it is not the
right word -- is there anything that would
keep someone from continually correcting
their vote inside the box?

    MS. HIRSCH: So the way the system
works is you have the ability to void that
paper ballot. The voter does one time. It
can actually be set up to five times. But
because of the Indiana law, we limit to one
time. And then they can print out another
copy. And then if they need to print more
copies because they're disabled and
they're -- so they do have the opportunity to
make corrections to any errors before they
print out their copy. And then, again, but
if they need to do more than two actual
printouts, then the poll worker can
reactivate the machine to help them do more.

    MS. NUSSMEYER: How do you void a
paper ballot?

    MR. HIRSCH: How do you vote a paper
ballot?

    SPEAKER: How do you void?

    MR. HIRSCH: So the machine -- the
voting process works just the way it has
before, where you make all of your selections
and then when you come to the last page, it
used to be that you -- the cast vote button
lights up, you push that, then you're done.

Now when you come back to that last
page, you push a button and the paper prints
out with your choices on it, and you're asked
to verify that. But it has not yet printed
anything at the bottom of that ballot.

It's just showing your selections.

And then if you want to review your ballot,
you can do that and you're warned that if you
make any changes to your ballot, then that
will void the paper.

So if you go back and you're reviewing
your ballot and you decide to make a change,
then when you come back to that last page, it
will print "ballot void" at the bottom,
scroll it off and print a new one for you and
then ask you to verify that one. And the
cast vote button is sitting there waiting to
be pushed. Or you can void your ballot a
second time. And then you have to get it
reactivated to do it a third time.

MS. NUSSMEYER: So there's two papers?
One would be the first time that I printed it
off, and then I'd have a second paper that
voids it?

MR. HIRSCH: Yes. It's on one roll. So at the bottom of each ballot that's
printed, it's either "ballot void" or it's "ballot cast." And that doesn't happen until
the voter decides that they want to verify.

MR. OKESON: So it's like a refund, like, a point of sales receipt? You ring it
up once and you refund it back? So it
reconciled at the end that there's only one
vote cast.

MS. NUSSMEYER: Mr. Chairman, if I
may, just to clarify a little more. The
ballot -- the electronic ballot that is
stored in the system -- the actual tabulation
that's occurring -- until they hit that cast
vote button, it is not stored electronically
as a cast ballot on the DRE, and it's not
cast as a completed ballot on the VV pack,
that paper receipt roll?

MR. HIRSCH: Correct.

MS. NUSSMEYER: So if you make a
change, you go back in the ballot, you're
essentially -- it's like editing a Microsoft
Word document until you hit, you know, submit final. You submit it through like an online system, if you will.

So even though you may have two paper records, only one of those two paper records is the final ballot that would align with what was saved and recorded within the DRE.

SPEAKER: And the law's written to keep all paper ballots. Both the voids and the casts, correct?

MS. NUSSMEYER: And that's substantially similar to what you would do in a ballot card voting system, that if a person wanted to spoil their ballot, they write "spoil." That's retained with the election materials. But only the ballot card itself that's counted through the standard tabulation gets stored.

MR. OKESON: My second question is relative to the running out of paper, if you will. Is it like a retail point of sale roll? That there's some color stripe? Something that comes up that would indicate or a notification electronically that says, "Hey. You're about to run out of paper," so it
doesn't happen in the middle of a vote?

MR. HIRSCH: Yeah. So when I designed this project, we had an entire chapter in the (indiscernible) on the VVPAT. And that was my guideline. And so one of the requirements is there be a sensor to detect low paper and paper out.

So there is constant communication between the voter machine and the printer. And if there's any interruption of the communication, then that stops the process and poll workers have to become involved. If the paper runs low, the current voter -- we have enough paper left so that the current voter can continue voting and cast their ballot.

And then when you try and activate it for the next voter, it'll tell you that the paper is low, it needs to be changed. If the paper actually runs out, which we don't anticipate it'll do because you already have this paper low situation, but there is also a sensor for paper out as well.

MR. OKESON: So would poll workers then need to sort of continually peruse the
machines to ensure that they're not seeing a
low paper indicator? Is there some other
way that that gets communicated?

MR. HIRSCH: Yeah. That's not going
to happen. Because one of our design
criteria --

SPEAKER: We've got to assume
everything in the world is going to happen.

MR. HIRSCH: Yeah, yeah. Well one of
our designs was enough paper -- more than
enough paper -- to last at least one whole
day of voting, you know, every three minutes
or whatever. So we have over 600 feet of
paper on one roll.

MR. OKESON: But you make a
presumption about how many voids and --

MR. HIRSCH: Oh, yeah. And so we ran
a number of scenarios. The longest ballots
we've ever seen in Indiana; the shortest
ballots; voiding two times; all that. And we
couldn't come up with a scenario where we ran
out of paper in one day.

SPEAKER: This may not be a question
for you, but who would be in charge of
changing the paper?
SPEAKER: It would be ordinarily the
two judges. The bipartisan judges would --
or, if for some reason, a mechanic was
required. The county election board
designates people to perform the function.
But I would think it's ordinarily a poll
worker function.

MR. HIRSCH: We anticipated the
technicians would do the paper change at
night. However, I did put a chapter -- an
addendum in the poll worker manual on how to
change the paper. It is sealed and locked.

It's a little ballot box. It's a
metal ballot box with a printer inside. And
in order to open it, you have to unseal it,
the serial number, use a key, and then change
the paper and reseal it.

MR. OKESON: I lied. I have one third
question. If the printer were to fail in the
middle of the day on election day, does that
particular voting booth machine just have to
shut down until it can be repaired? Or can
you continue to vote on it? What happens?
Maybe that's a question for you, Brad. I
don't know.
MR. HIRSCH: So they're not dedicated to one another. Whenever the printer is moved to a different machine or different printer is moved to that machine, the machine recognizes that and will print a new header on the roll.

So it could be a machine that was used -- a printer that was used with a different machine yesterday and still had plenty of paper left on it. If you disconnect one and connect one, it'll print a roll header at the beginning to tell you when that happened and what machine it's now attached to.

Plus, every vote record that's printed out, at the top of each ballot, it shows you the actual serial number of the machine that it was attached to. And there's a new unique ID that's associated with the paper record. And there's a matching ID on the electronic record for purposes of risk limiting audit afterwards.

And that number is unique to that record for the whole state. So that eliminates duplicates if we ever go to the
situation where we're counting those ballots, especially the automated counting of the paper ballots. We can tell if that paper ballot has been counted more than once.

MR. OKESON: I presume there's a pretty significant training program that's involved with the counties that have this machine?

MR. HIRSCH: Different procedures for --

MR. OKESON: Well, just reloading paper, managing printers.

SPEAKER: Significant training.

MR. HIRSCH: We have set up training as part of our whole certification process. We have planned various regions to do training and then come back in and do individualized training this fall. If we get approval, our implementation schedule is beginning immediately.

SPEAKER: And so for, like, early votes, you have 28 days of early voting. The printer locks down the same way as the voting machines would lock down at night? So there's no tampering with the --
MR. HIRSCH: So according to the federal guidelines, if there's a malfunction in terms of it's printing out the wrong stuff, then the whole -- that whole unit should be removed from service.

If it's a question of, you know, that particular printer is just messing up printing, the voting machine is fine. It can be removed -- the voting machine can be removed and reactivated with a different printer.

SPEAKER: I have some questions if you don't mind. So when you're talking about the different scenarios to make sure you don't run out of paper, are you also running on assuming the high volume for early voting? Like how those machine would need to have --

MR. HIRSCH: They just have every ballot-style machine. But by Indiana law, we still have to give them three minutes.

SPEAKER 1: Well, I was thinking in terms of the paper. There will be plenty of paper around, I take it?

MR. HIRSCH: Yes. There's over 600 feet of paper on a five-inch roll. And this
thing is fairly substantial in size.
Primarily because of the large --

SPEAKER: I'm talking about the early, in-person -- we've got thousands of people showing up.

MR. HIRSCH: Right, right. So we anticipate replacing the paper nightly. We just don't want to do it when the polls are open.

MR. KOCHEVAR: Had you -- or does the system have a built-in indicator that could predict how much feet is left in that printer? You said there's 600 feet fully loaded. Is there a way -- or have you contemplated that -- or is it even possible to build a, like, a sensor or some type of program or whatever that'll say --

MR. HIRSCH: There is a sensor.

SPEAKER 1: I want to know how much is in there. Is there any way to do that?

MR. HIRSCH: They don't have that. A county could decide to use less than five-inch rolls. They could put a three-inch roll in there. We actually have manufactured special paper for this.
I mean, it's thermal paper. But we put our logo on the backside so there would be no confusion on which side goes out. Because this type of paper has a coating on one side of it. And we didn't want technicians to accidentally load it backwards and not understand why it's not printing.

There is a logo on the back. If you see the logo, then you know it's backwards. But there's no way -- there's no sensor to say -- like a little meter, as you will.

What they do is they have a light sensor on there that tells you when it gets low. And it doesn't matter what size roll you put in there. When it gets below a certain level, that light sensor will detect that.

And then so that's the load paper sensor. The out paper sensor is the printer mechanism itself. When the paper gets pulled out and there's no more paper, then it sends out a different signal to the voting machine.

SPEAKER: So also with the early voting, the receipt -- the paper record or whatever we're calling it, is there a -- some
sort of identifier on that that would identify the voter for purposes of that voter dies before election day or anything like that. Is there any kind of tracking information on that piece of paper?

MR. HIRSCH: We do the retractions in the electronic record. And the electronic record is linked to the paper record by the unique ID. The paper record does not contain any voter identifiable information on it.

SPEAKER 1: Yeah. I didn't mean like actually identifiable. But there is a way to trace it? So it does have some sort of tracking information on it?

MR. HIRSCH: The tracking information is the two that are linked together. The two vote records are linked together. If we retract one, we can -- we know which one was the paper one because they have the matching numbers.

SPEAKER: But is it a matching number based on what --

MR. OKESON: Please. Go ahead.

SPEAKER: So it is stored within the system, right? The person who cast it, whose
absentee in person, has a unique identifier
so that it can be retracted? So you would
pull up that individual's ballot then to be
able to go to the VVPAT and identify those
votes cast?

MR. HIRSCH: No. The way we do the
retractions is in the electronic record. And
we don't actually know how they voted when
we're doing that process or, like, while the
early votes are being --

SPEAKER 1: Right. Which you should
not. That (indiscernible) the whole point of
having a retraction number. But then how do
you tie that to the VVPAT in order to make
sure you know that's the ballot that you
should not be counting when you're performing
that work?

MR. HIRSCH: The only way to know is
with that unique number that's sent to the
electronic.

SPEAKER 1: So there is a unique
identifier in the VV pack that ties it to
that electronic ballot?

MR. HIRSCH: Correct. For every
voter. So there's a unique ballot -- it's a
new feature. It's a unique ballot
identification. It doesn't matter which
voter. Each unique ballot -- on the paper --
has a matching unique electronic ballot.

So whatever happens to that ballot --
so we extract ballots from the machines and
some of those might get retracted. The ones
that remain have unique numbers that need to
match the unique paper number.

We don't have, like, any sort of way
-- I don't know. Unwind the roll and mark it
off. The only way you would know is by
having the vote record from the cast ballots
and matching that up to the vote records on
the -- so in terms of future investment, what
I'm anticipating is perhaps coming out with
something where we'd be able to do automated

tabbing of those paper ballots.

And that software would be pretty good
at being able to detect what has been
rejected and what hasn't.

SPEAKER: Should there be a recount,
for instance, and they wanted to look at the
verified paper audit trail to do that
recount, then how would the parties know
which ballot on that VV pack was retracted?

Would they be able to find --

MR. HIRSCH: So there's not a cast vote record for a retracted ballot because it's not a ballot, right. It wasn't cast.

It was voided. So what we do have is a cast vote record for the ones that were cast.

So what you will have, and we modified the infinity print out as well so you have a cast vote record that could be printed out of the Infinity. Each cast vote record now has that individual number on it, which has to match up to the paper number.

SPEAKER 1: So you're saying is one is retracted --

MR. HIRSCH: We have paper records that do not have a matching cast vote record on the machine because, like in the case of that voided one, you know, so if it's voided they only get that unique number when the vote is cast.

MR. OKESON: Co-Director King.

MR. KING: Yeah, Mr. Chairman. Just want to clarify with Mr. Hirsch following up on Ms. Nussmeyer's questions about recounts
and other situations where the retraction aspect of this becomes an issue.

I believe I'm correct in understanding that individual ballots that have already been cast prior to election date -- typically we do have a record of those -- are retracted individually.

So that if Ms. A is deceased after casting that absentee ballot, or Mr. B moves out of Indiana, that that ballot is retracted individually as the facts become known to the county election board. And they would have an opportunity -- to the county board election level to record the number of the ballot that they retracted. Is that correct?

MR. HIRSCH: I'm not sure that we do that. Do we do that? Do we record the number of retracted ballots in our software?

MR. KING: I don't mean the total. I mean the individual number.

SPEAKER: So if, like, Ms. A's ballot was ballot number 1 and it's retracted, does that mean in the paper record that ballot number one is marked as retracted?

MR. KING: Correct. Or could be
counted when retracted, Ms. A's ballot vote

that ballot number one has been retracted.

MS. HIRSCH: Yeah. So the voter ID

part that's put in early voting, that's only

in the electronic record. And we're sort of

masking the way they voted from the normal

user.

MR. KING: I understand. But is it

receivable to the county election board?

MR. SHAMO: Not through the normal

interface. With the M software.

MR. KING: If you could repeat --

MR. OKESON: Will you stand up please

and just state your name.

MR. SHAMO: Steve Shamo with

micro-vote. S-t-e-v-e, S-h-a-m-o.

MR. KING: Again to continue our

scenario, we have Ms. A's absentee in-person

preelection date ballot. And you've

explained it will have an identification

number on both the electronic version of the

cast, as well as the VV pack ballot in the

system.

So if there's an intervening event and

Ms. A's is disqualified, death for example,
the county election board can respond by
retracting the ballot. My question was can
the county election board at that time record
the number of Ms. A's ballot? And so it has
a running list of the number of -- the ID
numbers of the ballots that have been
retracted prior to the final --

MR. SHAMO: Let me answer it by
explaining how we retract. I think maybe
that will give us -- close this gap here. So
when the voter walks in and issues their
ballot, the voter identification number is
entered into the voting machine first only
for absentee voting. The logic within the
Infinity does not attach that directly to
their ballot.

It creates an electronic envelope

which that ballot goes in and that number is
stamped on the outside of it. So when the
retraction process takes place, it takes
place prior to the summation of all the votes
cast. And so what we do is we physically
plug the voting machine itself into the
computer.

We don't see ballot information or
votes cast. We simply see the list of
identifying numbers of voters that had voted.
In most cases, their voter ID number. What
we do, then, is we simply check that box of
that voter's ID number and do not include
that ballot in the electronic totals that
come out of that machine.

MR. HIRSCH: So I should point out
that I did modify that process. It now
includes that unique record ID on the same
line. So that as you're deciding "yes, I
want to void voter ID such and such," on the
same line you see the paper record identifier
on that line.

So you could record that number and
afterwards decide that's the one we're not
going to count.

MR. KING: So then in the event of a
recount, or a risk limiting audit, you would
be able to identify the specific paper trail
VV pack ballot that should not be
incorporated into the --

MR. HIRSCH: Correct. Because on that
particular screen, if you're looking at it to
do the retractions, it includes the paper
record ID.

MR. KING: Okay. I think that's what we were generally getting at.

SPEAKER: And if I may. Just to refer back to Mr. King's question to -- so in an early voting context, you might have 25 DREs with the VVPATm. Each one with their own individual roll of paper. If Ms. A, you know, voted on machine one, how would the county election board know which roll of paper to go back and pull to be able to view and find that record to retract? Does it say at the top of each day that this is July 1st, you know, machine one?

MR. HIRSCH: It does. There's a roll header. Every time the machine is powered back up, it's printed. That's the first thing that gets printed when it's reactivated for voting.

SPEAKER 1: And we would know Ms. A was --

MR. HIRSCH: But there would be procedures on how you store those rolls. That's beyond the scope of our certification.

So, you know, you pull it out of the machine
and where you put it -- I anticipated someone would just put a rubber band around the roll and write on the outside, you know, serial number such and such on such and such date, and put it on a shelf somewhere.

MR. KING: I want to invoke the Lake County practices, how they handle the storage of absentee ballots after we count them and tabulate them on election day through an envelope -- registered envelope number. And basically signatures of date, like you mentioned, day that roll was used, machine that it was used upon, and that (indiscernible) that we seal that envelope. Therefore, we have a catalog running to go back to that location.

MS. NUSSMEYER: And I don't believe there is anything super specific in State law that requires them each day to remove the roll of paper and do this sort of reporting that might be helpful on the back end canvassing. But I do think that it's probably worthy of conversation with the counties for best practices.

MS. KING: I agree with Co-Director
Nussmeyer.

SPEAKER: And I believe that it's our responsibility, too, as these practices develop that we submit our procedures as part of our VSTOP-certified system. You run it through them so they verify the procedures that we're doing then.

MR. HIRSCH: And we're continuing to refine those as we gain more and more life experience. We might not need to use five-inch roll. You know, three-and-a-half inch roll might be the optimum for certain types of elections. And we'll find that out over the years.

MS. NUSSMEYER: Is this supposed to be used in the 2019 election?

MR. OKESON: I'm sorry?

MS. NUSSMEYER: Is this supposed to be used in the 2019 general election?

SPEAKER: We will have approximately 100 units going out for pilot in counties like -- the counties right now. Bartholomew County is going to be our biggest focus. They're going to use them in advanced (inaudible) and for election date. And we've
contacted Boone County who's in agreement to
do it. And then depending on the remaining
numbers left, that we could put into Lake
County.

The only problem there is Lake County
wants to do it at all five of their satellite
locations. And that will pretty much take up
the inventory. So we're hoping that they
will focus on one or two of their satellite
absentee locations.

SPEAKER: The email exchange about the
office titles for the straight party
selections and -- so this paper ballot -- I'm
supposed to be able to look at this piece of
paper and have it and understand who they
voted for. And looking at it -- and this is
attachment five, I think.

MR. OKESON: Four or five.

SPEAKER 1: It doesn't seem to me to
be at all clear. And I don't know if this is
something that the county needs to work on or
who it's -- I see that it -- so it looks like
straight party selections is going to show
the public question of whether they answered
yes or no. And right below that it says
(inaudible) -- but it doesn't indicate the office at all. And then if there isn't straight party selection, it still doesn't indicate --

MR. HIRSCHE: The confusion is -- I assume the confusion is what you're seeing is the VSTOP test scenario election. So it wouldn't say -- on this one it'd say, President United States.

SPEAKER: Oh, so that helps. Because when the titles are removed, I thought that it meant it really was going to say office one. I thought that really is not a --

SPEAKER: Yeah. In fact, one of the modifications we made after we first fired it up is we realized we needed a more significant indentation between the office title and the candidates chosen. So it's fairly clear when you see it with the actual title.

MR. BAGGA: Mr. Chairman, members of the commission, let me clarify that. When it came out of the field test -- when we were testing the paper record, we saw that the public question was -- the label -- public
question was printed no matter whether the
voter has voted yes or no.

If it was an undervote in the public
question, the label will still be printed in
red. So that seemed to be confusing to a
voter. So the modification that they made,
now the label public question will only
appear if a voter votes yes or no.

Similarly, a straight party would only
appear if the voter chooses to vote straight
party. I would also like to add an element
to the previous discussion we had about
ballots and the number of tries and the
copies on the papers. And as reported on
page 1 that the official ballot is the real
ballot.

The paper record is just a copy and
that's not -- it's our understanding is the
official is the ballot in the DRE and not the
paper ballot. That's just a copy of that
form of identification.

MR. OKESON: Thank you for clarifying
that. Any other questions? And this is
expiring October 21st, 2021. So is there a
motion to approve the application for
modification on the micro-vote EMS 4.3
voting system of the recommendation of VSTOP
and subject to any restrictions or additional
requirement in that recommendation for a term
expire October 21st, 2021? Is there a
second?

SPEAKER: I'll second.

MR. OKESON: Any discussion?

SPEAKER: Real quick. Is there any,
like, statute and state laws that says we can
do this? Or is it a concern of outside
influence? Or what is the --

MR. SIMMONS: The 2019 statute of
general assembly past legislation authorized
the use of systems that do do that. So that
would be the first time in Indiana. It also
provided for phasing out over a ten-year
period the use of all electronic voting
systems that do not do that.

MR. OKESON: Any other discussion?

MR. BAGGA: We would also like to add
for the record question numbers that are
listed on page 2 for the components, the
Microsoft Windows 10 --

MR. OKESON: Before you go down that
road -- we have a motion. And we have a
second. We need to vote on that before he
continues on the record, correct?

MR. SIMMONS: I think you basically
close discussion. And take the vote on the
motion.

MR. OKESON: Yeah. So we have a
motion and a second to approve the micro-vote
voting system upgrades. End of discussion.
So take a vote. All those in favor signify
by saying "aye."

ALL TOGETHER: "Aye."

MR. OKESON: Hearing no nays, the
motion carries. And is adopted. Do you have
any additional comments?

MR. BAGGA: For the purpose of record,
we would like to add that the question
numbers that are shown on page 2 of the
report, in particular for component Microsoft
Windows 10 Professional, it lists the build
number of that question as 1809.

Those build number can change based on
when Microsoft decides to do security
updates. So that's the version number that
was tested for the build when we did the
field test with the lab test. That can change.

MR. OKESON: Is that the 1809?

MR. BAGGA: Yes, Mr. Chairman.

MR. OKESON: Okay. Thank you. Moving on to Hart InterCivic Verity 2.3 Voting System application and report.

SPEAKER: Thank you. Mr. Chairman and members of the commission, this is a recommendation report for Hart InterCivic Verity Voting 2.3. Which is an application for a -- and evaluation of a new voting system and for subsequent certification by the Indiana Election Commission.

Hart InterCivic applied for this certification on January 1, 2019. The system went to the lab for testing -- the VISTAL lab for testing and was found to be in compliance with the VVSG version 1.0.2005. And the system was also certified by the U.S. Election Assistance Commission on March 15, 2019.

This particular voting system was tested at Ball State University over a two-day period on May 21st and 22nd of 2019.
by the VSTOP team. And the field test
included verification of all the required
elements of the Indiana statutes as
applicable regarding voting systems as well
as an ADA compliance examination.
Mock elections including the
IED-approved test scenarios for straight
party voting or SCA61 were conducted on the
voting system. Verity Voting 2.3 is a
comprehensive voting system that includes
software/hardware components to support
paper-based, electronic, and by-mail voting.
These components allow election
officials to accomplish a variety of high
level tasks. The components of this system
are listed in the tables within the
recommendation report from VSTOP, which
includes a list of hardware, corresponding
firmware, corresponding software and a list
of COTS or commercial off-the-shelf
components that are used by the system.
The components that Hart InterCivic is
seeking certification on with their
corresponding software and firmware include
the Verity scan, the verity touch writer, the
Verity touch writer duo, and the verity controller.

Based on our tests and our review of the materials, we'd like to talk a little bit about the findings of our examination of the documentation, as well as correspondence with Hart InterCivic with regard to this system and our own on-campus test.

The verity touch writer duo is a component which is -- consists of a series of up to 12 ballot-marking devices that are connected by a daisy chain network.

And what we found is that this particular network is a closed network. And it's just a connection of up to 12 voting systems that could be controlled by a controller, poll worker, in order to identify specific ballot styles on each machine in that 12 -- up to 12-machine daisy chain.

And this closed network -- and we spent quite a bit of time researching this. We believe it doesn't impose any additional vulnerabilities or threats even though it's a network without a person having direct physical access to the hardware.
The verity print features were determined to not be on the scope of certification. And that was actually part of the original application. The Verity printer is a device that prints a ballot that is unmarked. It's essentially a ballot that would be marked.

And it wasn't under the scope of certification for Indiana so it was removed from the original application. And you'll see an amended application in the packet of materials, which was provided to us this month.

As I mentioned earlier, on May 21 during the mock election, on the Ball State University campus, we did experience an issue with straight party voting. That affected at-large races. The predetermined vote tallied -- vote tallies -- for the at-large races did not match the tabulated results from the Hart system.

The representative from Hart InterCivic was there for the test, was very responsive to this and explained that the reason for this was due to an improper
selection of a setting in the system. And he
discovered this later in the day through
correspondence with Hart InterCivic
technicians.

So they were able to correct this
problem, identify the problem, troubleshoot
the problem, and correct it so we could
repeat the mock election on the following day
on May 22nd, 2019. And everything turned out
fine with all of the vote tallies matching.

So our recommendation is that on the
bases of your review and evaluation, we find
that this particular voting system -- the
verity 2.3 referenced in the report -- meets
all of the requirements of the Indiana code
for the use of voting in the State of
Indiana.

And this finding includes compliance
with the legal requirements for the voters
with disabilities. Included in this
recommendation, VSTOP advises Hart InterCivic
to be sure to train poll workers to instruct
voters to verify their cast ballots printed
on the verity touch writer before scanning
with the verity scan.
VSTOP also recommend that the Hart InterCivic company properly train election personnel creating and validating election setup to be in compliance with Indiana requirements to make sure that proper settings are made in the system prior to deployment.

Therefore, on the basis of our review, and our review of the laboratory test and our own test on campus and our discussions with Hart InterCivic, VSTOP is recommending the certification of this particular system.

MR. OKESON: I'm not seeing anyone. But I don't assume there's anybody around back there from Hart InterCivic.

SPEAKER: They're not here.

MR. BAGGA: The vendors were notified they were being heard. And they did not respond to whether they were going to be attending or not. So we don't have anybody here.

MR. OKESON: I don't have an -- I can't picture it in my mind, this software setup. And you didn't even use the word software --
SPEAKER: Daisy chain?

MR. OKESON: Not that. But just this set up.

SPEAKER: Oh, the settings in the system?

MR. OKESON: Yeah. Is that done -- is that an internal mechanism?

MR. BAGGA: That's a process, if I may. During the election setup, there's a check box. So there's a series of check boxes. And Indiana straight party regulations, as we know, in Indiana the at-large races must choose, if more than one person can be elected, the voter -- the straight party voter does not filter down to those races.

A voter must choose those candidates that she wants to vote. So when we did the test on the first day, that wasn't happening. The at-large bases were also being populated. Which we found in testing of course.

So there's an election programming for Indiana setup where that box needed to be check. And they had not checked that box.

MR. OKESON: But that wasn't a known
thing until there's an audit done, essentially, at the end of the day, correct?

SPEAKER: Once we saw the results, we realized something was wrong.

MR. BAGGA: We realized that.

SPEAKER: And we brought that to their attention. Then they troubleshooted the problem. And they discovered that was the reason was that a check box was not checked in the election definition settings within the system.

MR. OKESON: So when you go out to the counties with the system, right -- I mean, is this tested in some manner before -- I guess what I'm saying is you wouldn't know about this until after the election, right? Until the end of the day and you go -- and you have -- can you speak to that?

MR. KING: Yeah, Mr. Chairman, there are safeguards, most prominently a public test that's required for all voting systems prior to election date and actually prior to the start of early voting. So any anomaly should be identified and corrected by then.

MR. OKESON: Okay.
SPEAKER: Mr. Chairman, if I may.

This issue with Hart is not unique to Hart. But was it just two-ish years ago when the law changed about straight party and that it would not be be applied to at-large races and all of the voting system vendors in Indiana had to come before the commission to request changes in their software to do straight party voting in accordance with Indiana law?

So the fact that Hart has a special Indiana setting is not unique to Hart, other voting system vendors do it. And then it would not be available on an ES&S system. For example, at the county level as Mr. King indicated, that would pop up in a public test, or (indiscernible) inaccuracy testing leading up to the public test.

SPEAKER: How many systems are certified -- do we use in the state?

SPEAKER: Three or four?

Mr. King: There are five vendors. Some of whom have more than one model type that are certified. And so the number of potential models out there is somewhere in the 10 to 12 area.
SPEAKER: And I guess, all of you guys, is it normal for someone from the organization to appear?

MR. HIRSCH: It depends. Sometimes they do, sometimes they don't.

MR. KING: I would say it is not expected. Especially in the case of vendors from out of state. Not because of the travel that's involved. Micro-vote happens to be a locally located company. But we don't necessarily see others from Colorado, for example.

SPEAKER: And Commissioner, I went to both field tests actually. And (indiscernible) had representatives there to be there to troubleshoot and work with VSTOP so they have had communication with (indiscernible) leading up to the field test and results afterward.

SPEAKER: And does it hit the same marks that the other vendors have hit? Are you guys comfortable with it?

SPEAKER: I would say yes from an administrative perspective.

SPEAKER: I would agree.
internal tests that vendors do with their clients with this set of elections so those tests should catch any of this.

MR. OKESON: Okay. Is there a motion to approve the application for certification of Hart InterCivic 2.3 voting system in accordance with the recommendations of VSTOP and subject to any restriction or additional requirements in that recommendation for term October 21st, 2021?

SPEAKER: So moved.

MR. OKESON: Second?

SPEAKER: Second.

MR. OKESON: Any discussion? Hearing none. All those in favor say, "aye."

ALL TOGETHER: Aye.

MR. OKESON: Hearing none, the ayes have it. The motion is adopted. I think that wraps it up.

The Indiana Election Commission has finished its business for the day. Is there a motion for the Indiana Election Commission to adjourn? All those in favor say, "aye."

ALL TOGETHER: "Aye."

MR. OKESON: We're adjourned. Thank
MR. KING: And I'll defer to counsel, to see if they have -- Officer Bates, just from a legal perspective.

SPEAKER: I will note that the report from VSTOP is in the same form as in the -- their provided state recommendation as other previous voting systems.

SPEAKER: Okay.

MR. BAGGA: If I may. In response to your question, there are 11 different voting systems. So, Brad, you are in the range there.

And going back to Ms. Nussmeyer's remarks about other voting system vendors having similar settings. Yes, VSTOP has come across other voting systems when the state party laws in Indiana changed. Most all vendors had to make modifications to comply with the new state party requirements. And they came up with these Indiana settings. And vendors who do business and who have certified systems in Indiana are aware of those settings, and there are other safeguards. In addition to Mr. King's mention of the public tests, there are
CERTIFICATION

I, ASHLEY GUILLERMO, hereby certify the report of proceedings; that said audio-recording was taken down from the electronic sound recording of the proceedings in the above-entitled matter and transcribed by me, and that the typewritten record was transcribed to the best of my ability.

I do further certify that I am a disinterested person in this cause of action, that I am not a relative or attorney of either party or otherwise interested in the event of this action, and that I am not in the employ of the attorneys for any party.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 12th of September, 2019.

Ashley Guillermo
Notary Public

My Commission Expires:
December 10, 2026
County of Residence:
Lake County, Indiana
you.