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BEFORE THE MISSOURI STATE BOARD OF EDUCATION
STATE OF MISSOURI

IN RE:)
)
COMPUTER SCIENCE STANDARDS)

PUBLIC HEARING

February 19, 2019
Missouri State Board of Education
205 Jefferson Street, State Board Room, Suite 5
Jefferson City, Missouri 65102

BEFORE:

MISSOURI STATE BOARD OF EDUCATION
Charles W. Shields, President
O. Victor Lenz, Jr., Ph.D., Vice President
Michael W. Jones, Member
Kimberly Bailey, Member
Carol Hallquist, Member
Peter F. Herschend, Member

STAFF

Dr. Margie Vandeven, Commissioner

Reported by:

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1 P R O C E E D I N G S

2 (Hearing started at 8:31 A.M.)

3 PRESIDENT SHIELDS: Good morning, everyone.
4 Welcome. Before we actually have our board meeting, we
5 have a hearing to hear public testimony regarding the
6 review of the computer science standards. So, actually,
7 you'll see that we're taking a transcript of your
8 testimony. We appreciate that. We will also receive
9 written comments and then we'll have the opportunity for
10 public testimony today.

11 But first I want to hear from the work groups,
12 folks that are working on this. And we appreciate your
13 being here today and your hard work up to this point and
14 we look forward to hearing from you. So proceed.

15 MR. BARTON: Good morning and thank you for
16 having us today. First, we're going to start off by
17 introducing the work leaders for this computer writing.
18 My name is Doug Barton. I'm from Lindbergh Schools. I'm
19 an Instructional Technology Specialist.

20 MR. DENEAU: My name is Bob Deneau. I am the
21 coordinator STEM for the Rockwood School District and I
22 was leading the grade 6-8 group.

23 MR. CLEVINGER: I'm Kevin Clevenger from Blue
24 Springs High School. I teach all the computer science
25 classes there and I was leading the 11 and 12th grade work

1 group.

2 MR. SASSER: And my name is Patrick Sasser. I
3 teach at the Columbia Area Career Center in Columbia, MO
4 and I was leading the 9-10 work group.

5 MR. BARTON: Stephanie Phillips was unable to be
6 here. She was the leader of the K-2 work group. I'm the
7 leader of the 3-5 work group. So I'm going to slowly
8 scroll those names on the screen as we go. We had so many
9 different educators from around the state coming together
10 to make this possible and one of the first decisions that
11 we had to make was to decide how to divide up that work.

12 We decided that the most appropriate way to go
13 about that was by age groupings. We'll talk more about
14 the CSTA Standards, the Computer Science Teacher
15 Association Standards. Those were kind of the foundation
16 for this writing. They divide by the same grade levels
17 and so that's how we decided to go through this work.

18 MR. DENEAU: So at the same time, we had the
19 luxury and really it was great to have expert resources in
20 the room with us. As much as we were drawing from lots of
21 experience in the classroom to also bring in industry
22 professionals was a huge asset to us.

23 So on the screen you're seeing some of the
24 industry professionals, experts that came in and worked
25 with us. And it was great that as we were working, you

1 know, we could go ask a question of any of them or they
2 would sit in with our groups and kind of lend their
3 perspective. Some of them have done similar work in other
4 states. Some of them have done work on a national level.
5 So it was great to have experts in the room.

6 At the same time, we also had our DESE experts
7 in the room as well. So if we were looking for direction,
8 if we were looking to see, kind of, what other curricular
9 areas had done through a process, we were looking for
10 connections between curricular area, it was a great
11 resource that we could have. So as we went through this
12 process, you know, we were fully supported by these
13 experts and it really made the work much better and we
14 were much more informed. It really just gave us another
15 perspective.

16 And so as we started the work, we really had to
17 boil down to what is the purpose of this? Why are we
18 creating these computer science standards? So you can see
19 the statement that's on the screens. Truly as we think
20 about why we need this, the world we live in today,
21 computer science touches all of our lives. At the same
22 point, it also affects the workforce, the job place. So
23 we want to make sure that we are fully preparing students
24 to be successful when they leave our K-12 schools, no
25 matter what they go into, no matter what career path they

1 take.

2 And so we really feel that this is a very
3 important initiative to take on and really, then, provide
4 a standard so we can make sure that all students across
5 Missouri are receiving quality K-12 computer science
6 experiences.

7 MR. CLEVINGER: During the process, we began
8 this back in November, it was our first in-person meeting
9 here in Jefferson City. Then we -- in between that one
10 and in there we met again virtually to kind of start
11 working on standards, we did virtually from there. Came
12 back together again and started working vertically with
13 our teams and, like, 11, 12 worked with 9 and 10 to kind
14 of better make sure that the standards were gradually
15 getting better for each of the grade bands and all of
16 that.

17 Then we was supposed to meet in January again in
18 person, but the weather kind of decided we couldn't make
19 it down there. So we set up where our teams met again
20 virtually and all of that and everybody did a real good
21 job on that part there.

22 As we talked about, working collaboratively
23 there, which it was in December that we came together,
24 worked down at the Truman Building and spent the day there
25 working together, making sure we were doing everything

1 right and making sure everything flows.

2 So again, as we talked about there is that we
3 wanted to make sure we research and examined -- besides
4 looking at the CSTA standards, we also looked at other
5 states that have already implemented their standards to
6 see kind of what they had so we got some ideas; we're not
7 reinventing the wheel at the same time. We used some of
8 their standards to help us guide what we needed to do in
9 the state to help out with everything there.

10 So as we also discussed, teachers might need
11 to -- there might be some work, but that's what we're
12 having this hearing for and all that, so we can actually
13 figure out if we can make this best for the students in
14 our state.

15 MR. SASSER: Yeah, so you can see that there --
16 we looked at developing K-12 computer science standards,
17 addressing computing systems, networks and the internet,
18 data and analysis, algorithms and programming, and the
19 impact of computing. And you can see our main -- our
20 primary source there was the CSTA K-12 Computer Science
21 Standards. They were our primary reference.

22 So our progress so far is we've written a draft
23 of the standards. I think you guys all have that. We're
24 currently writing crosswalks. So we're looking at how to
25 crosswalk this with science standards and math standards

1 as well. And then we are also working on a glossary and
2 suggestions for students, examples of what students might
3 do to meet these standards and things like that.

4 Here's our timeline you can see there.
5 February 19 through March 12, that's the public comment
6 period. March 11 through April 4, the work groups review
7 comments, edit and submit their work. And then April 5,
8 the final recommendations sent to legislature's Joint
9 Committee on Education. And then May 14, you can see
10 standards presented to the state board for approval.

11 PRESIDENT SHIELDS: Okay. So questions from the
12 board? And maybe, Commissioner, I might ask you to kind
13 of give a little bit of history, how we got to this place.

14 COMMISSIONER VANDEVEN: Okay. Yes. Thank you.
15 So previously when we would develop standards, there would
16 be a lot of input that would go into them, but not to the
17 level that we've had since the House Bill 1490 went into
18 play. So House Bill 1490 has structured very specific
19 guidelines on how to develop social studies, science, math
20 and English/language arts standards and was very
21 prescriptive in the process to be followed.

22 For the computer science, this is the first time
23 since that run that the legislature has allowed the
24 department to conduct the hearings on our own and to go
25 through and develop the standards in a way that we see

1 makes the most sense. And I will tell you that the
2 department found a lot of those procedures that were put
3 into place helpful and have stayed very closely aligned to
4 those requirements and have made every effort to go out
5 and find the right people to lead us through this process
6 so that they are truly Missouri standards developed by
7 Missourians that will serve our children and our schools
8 well. Thank you.

9 PRESIDENT SHIELDS: Questions of this work
10 group? Seeing none -- oh, Peter.

11 MR. HERSCHEID: This is just a clarification for
12 me. It strikes me that the use of computer technology is
13 so universal, really pre-K through 12, every grade, every
14 class, it's a little like reading. Reading is the
15 universal, it cuts across all academic disciplines. Do I
16 understand that your team is recommending a separate
17 course in computer technology that would -- whatever the
18 grade breakdown you had, it looked like about five
19 breakdowns, so it would be taught separately in each of
20 those -- if five is the right number, each of those age
21 brackets?

22 MR. BARTON: Well, I think, first of all, 9
23 through 12 is a little bit different because you do have
24 specific courses that are designed already that are in
25 place. At the lower age levels, though, you are talking

1 about two possible paths. One is that you could have a
2 separate, in a sense, computer science literacy course.
3 The other side, and this is where the crosswalks are very
4 important, the classroom teacher could be implementing
5 these computer science standards into their daily
6 teaching.

7 So if you look at these different standards and
8 you cross compare them with what we already have in our
9 curriculum and our standards, you can see that there are
10 good fits. So there is the possibility for both.

11 MR. HERSCEND: Yeah.

12 MR. BARTON: And --

13 MR. HERSCEND: I'm supportive. My questions
14 are not criticism. I'm supportive.

15 MR. BARTON: Oh, yeah. I understand that.

16 MR. HERSCEND: But that throws -- if you say in
17 the classroom teacher who may not -- his or her training
18 at the -- perhaps at the college level today, perhaps, I'm
19 not convinced of that, but there was -- for the vast
20 majority of the certificated teachers we have, they did
21 not have a class in teaching computer -- computers,
22 computer science and so it throws a burden back on the
23 classroom teacher who is not prepared. Yet if we make it
24 a separate class, it's one more class added into a
25 curriculum that's already full. I'm trying to reconcile

1 these two points in my mind.

2 MR. BARTON: I think that that is always the
3 ongoing question as we grow and there are more things that
4 our students need to know, what are the things that we
5 have to hold on to that are important, which ones do we
6 need to let go of so that we can move forward? Teachers
7 are going to need supports through resources, through our
8 guidance. Also, just taking away the fear that sometimes
9 computers can have for people, providing that support is
10 going to be critical.

11 MR. DENEAU: I can kind of speak to -- so in my
12 role in the Rockwell School District, I oversee all of our
13 STEM initiatives K-12. So computer science falls into
14 that area and so we have done some things -- like, when
15 I'm working with my element -- I'm talking about
16 elementary colleagues. We have had to develop their
17 skills on what does this look like in your classroom.
18 What does it look like in a traditional classroom setting
19 where it is not a separate class? Because there are
20 advantages to bring in the concept of computer science
21 into a class that every student takes because now you've
22 exposed every student to that.

23 You know, it's great we have at the high
24 school -- we have specific computer science courses. At
25 our middle school, we just launched some of those this

1 year. It's great because you get those kids who are
2 really -- they're into it, they want to do it and we can
3 train those specific teachers up.

4 At the same time, we want to make sure that all
5 students are gaining these skills. And so that does
6 require, I think, on the part of schools, we are going to
7 have to examine how do you develop teachers so that they
8 are comfortable with these concepts, that they can find
9 those ways to integrate them into what we're doing because
10 we do know that their schedule is very full and there are
11 lots of important things already happening in their
12 classroom.

13 But I would contend that, you know, this being a
14 part of this everyday life and driving so many things in
15 our world, that not every student needs to be a coder, but
16 every student should probably understand how it all works
17 because it will affect their lives.

18 MR. HERSCEND: Commissioner, it seems to me
19 that this -- separate and apart from this, but this raises
20 the question at the colleges of education, curriculum and
21 certifications. What they're saying is exactly right.
22 You will know how to operate computers in this world or
23 you're not going to be successful. It is like reading.

24 And I wonder how much of a requirement there is
25 at graduation from the colleges of education to have

1 training in computer science, not just how to write --
2 type on a computer, but computer science?

3 MR. JONES: I'd like to put a little finer point
4 on Peter's question and your answer and stay with the
5 reading analogy. So the focus of these standards is
6 teaching skills as opposed to content, correct? So to use
7 your reading metaphor, once you learn how to read, you
8 might want to pursue a career or life in English
9 literature, but that's a secondary benefit or -- from
10 reading where everybody needs to learn how to read. So if
11 they're not -- from a lay standpoint, am I understanding
12 this correctly?

13 MR. BARTON: Computer science is a literacy.
14 That's the word.

15 MR. JONES: Okay. Then it really does go back
16 to your point about teacher education. If you're
17 introducing a skill -- and it's interesting that one of
18 the things that Normandy is kind of experimenting with and
19 they got it from Boston is the literacy notion that every
20 class has to teach reading just because reading is so
21 fundamental. So we're layered -- you could say we're
22 layering the notion of computer science as a skill on --
23 like we think about reading.

24 So that would -- would that be a good way to
25 think about it? I don't want it to be exactly right, but

1 I just want to know if I'm literally in the ballpark from
2 an intellectual construct.

3 MR. CLEVINGER: So speaking from a high school
4 standpoint of teaching classes and one of the things that
5 most of it is is that you teach the skills and content,
6 but also you teach kids how to be self learners.

7 MR. HERSCEND: A little closer to your
8 microphone, please.

9 MR. CLEVINGER: You can teach them to be self
10 learners. So they're doing research on their own. They
11 are doing reading and everything about how to implement
12 some of these new skills they're learning because within
13 computer science, we're not able to teach every skill
14 there is. So they're going to have to learn some stuff on
15 their own also. So they spend a lot of time doing
16 research, reading and adding to those reading skills that
17 goes across all of curriculums.

18 MR. SASSER: Yeah, I think -- I also think it's
19 a -- it's a common assumption, like at least for me
20 teaching, you know, at the high school level, like
21 teachers will say, oh, they already know that when they
22 get to you. They're fully aware of what computer science
23 is just because they've had an iPad in their hands or just
24 because we're -- Columbia Public Schools is a 1 to 1
25 school district, so they -- people make that assumption.

1 So I think setting up these standards will say,
2 okay, well, in order to say that, yes, they do know that,
3 they need to have met these particular standards, and then
4 we can say officially, yes, they do know these things
5 before they get to you.

6 But to answer your question, I do think we need
7 more training for teachers for sure. I mean, you know,
8 like I said, we go one to one and just because you put an
9 iPad in a student's hand, it doesn't mean anything unless
10 the teacher is fully equipped to train that student on how
11 to use those things and how to meet these standards and
12 things like that.

13 So we do need more training for teachers. But I
14 do think you can meet it in the everyday classroom. I
15 don't think you need a particular class at the
16 kindergarten level called computer literacy. I think you
17 can teach it within everything else that you're already
18 currently doing.

19 MR. HERSCEND: That's my point on reading.

20 MR. SASSER: It's fully embedded.

21 MR. HERSCEND: Reading is a tool of education.
22 In this case, in the last ten years, really in terms of
23 being pervasive in the classroom, computer is parallel to
24 reading in terms of getting an educated person. That's
25 all I have to say. Thank you.

1 DR. LENZ: Am I understanding from your
2 discussion that when you finish this, you're not going to
3 have a -- you're going to have standards for computer
4 science instruction in schools, what you expect to happen
5 at each grade level. Are you looking at having a computer
6 science curriculum out of that or are you looking at
7 integrating those standards in your curriculum
8 expectations into the curriculum of all the other things
9 that are taught in your school?

10 Because this is a tool to use in instruction and
11 you can look at the regular classroom teacher to teach
12 most of this as part of their instruction and in reading
13 or science or math. I mean, how have you talked about
14 that and what work are you doing toward developing that as
15 you move forward?

16 MR. BARTON: So I would first talk about the
17 crosswalks in terms of looking at the standards that we
18 teach. And every school is going to have to make their
19 own decisions about where the best fits are, but there are
20 opportunities everywhere. Speaking for myself in
21 Lindbergh, what we're doing right now is getting to this
22 process of finding the best fits so that the classroom
23 teacher can teach it within their class, that it's not a
24 separate class.

25 The opportunities are there, you just have to

1 take time to look at these standards and think about, so
2 what's the application of this? What does this mean?
3 When would this come up and when does it fit into my other
4 subjects?

5 DR. LENZ: But is it going to be part of that
6 reading curriculum, part of that science curriculum?
7 That's what I'm talking about when I talk about
8 integration.

9 MR. SASSER: At the high school level, I would
10 probably lean towards it would be separate classes in
11 computer science.

12 DR. LENZ: I'm talking about elementary
13 particularly now.

14 MR. SASSER: Okay.

15 DR. LENZ: Because that's where the initial
16 learning would take place, I would believe.

17 MR. DENEAU: We're providing -- to me, these
18 standards provide a foundation that then local school
19 districts can make, as you said, the best fit choice for
20 what does this look like, what does it -- how does it meet
21 the needs of their area. So as a school district leader,
22 when we write our own curriculum, we rely on the Missouri
23 learning standards. We rely on those to be the foundation
24 for the courses that we create.

25 And so if a school district made that decision

1 to -- they wanted to create some stand-alone courses,
2 they've got a really good document that is a good basis to
3 start from. At the same time, if they decide we think
4 this is best to be an integrated approach, as you're
5 talking about at the elementary level, then also we have a
6 document that really helps us starting to find those
7 connections.

8 And so I do think as we get into the middle and
9 high school grades, really then you can kind of look at it
10 both ways. It could be a separate course. It could
11 also -- there could still be integrations. I think, you
12 know, just because we get to those higher -- you know, we
13 get to high school, doesn't mean that computer science has
14 to live just in this little vacuum of a computer science
15 course. There's still ways to integrate it across
16 classes. And I think we'll be providing districts a very
17 strong foundation that they can then make the best
18 decision for themselves.

19 MS. BAILEY: So as a mom with two children, one
20 in cyber defense, one going into computer science, I am so
21 excited that we're moving in this direction. Do we have
22 the infrastructure necessary that our whole state can hit
23 the ground running on this, so infrastructure and
24 equipment, or are some of our rural districts or some
25 areas of our state going to lag behind? And, if so, what

1 do we need to do to help them?

2 MR. SASSER: I think that we -- like at least in
3 developing our standards, we try to make it not specific
4 to a particular course or to a particular computer
5 programming language and to make it more concept based so
6 that schools could really pick, like, if they wanted to
7 teach, like, an if statement or something in programming,
8 they could do that with Python or with Java or with
9 whatever language that teacher was most comfortable with.

10 So we tried to make them broad enough to where
11 the teachers could have some autonomy in making decisions
12 about the coursework that would best work at their school.
13 So I do think that they will have the opportunity -- you
14 know, all school districts will have the opportunity to
15 kind of implement this in the way that they see fit.

16 MR. CLEVINGER: And there's many different
17 curriculum providers, also, that help align this to. For
18 rural schools, there's some such as code.org and places
19 like that they can actually do online parts of it instead
20 of actually having to have the machines that are higher
21 end and all that stuff. To curriculums that require the
22 machines be right there, such as the PLTW curriculum and
23 other curriculums like that. So there is -- the standards
24 were written to provide them to be able to choose
25 different ones or they can write their own, also.

1 MS. BAILEY: And this might be a question for
2 the commissioner. I know that broadband has been an issue
3 and just even access to internet as well as just computer
4 equipment. Are we where we need to be for our whole state
5 on that?

6 COMMISSIONER VANDEVEN: We're not where we need
7 to be, but we're getting much closer. Jeff Salser has
8 been working with the Governor's office on an initiative
9 that would ensure that all schools have an opportunity --
10 every school has internet, it's just they don't have the
11 capacity to -- the speed, everything that's necessary to
12 really function as -- at the high level that we would need
13 them to do that.

14 So I do think that we do have a number of people
15 who may be doing presentations during the public comment
16 and particularly if you're from a rural district, if you
17 could help address that question, that would be helpful
18 for us to hear. What are the true needs and making sure
19 that we do have the capacity. I do not believe that we
20 can say we were there yet, but I can tell you that we are
21 excited about the broadband initiatives that are underway
22 and, hopefully, we'll be at a hundred percent by the end
23 of if next year. Hopefully.

24 MS. BAILEY: Thank you.

25 MR. BARTON: I think it's also important just to

1 know, also, that all of these standards do not require a
2 computer in order to learn. You can learn many of these
3 in what they call unplugged activities that are more about
4 critical thinking and understanding like algorithms as
5 steps of a process.

6 MS. BAILEY: Thank you. That's helpful. Thank
7 you.

8 PRESIDENT SHIELDS: Okay. So we appreciate your
9 great work and your continued work on this. So as you can
10 see, there's a lot of interest. So I think at this point
11 we -- I know we have a couple of folks that would like to
12 provide testimony. So I remind you to fill out a form and
13 make sure that Robin has that, but if you would like to
14 provide testimony, come forward. I think Burdett Wilson,
15 I know, has asked to come forward, so -- we'll clear you a
16 spot up there.

17 MR. WILSON: Thank you. Good morning. My name
18 is Burdett Wilson. I feel a little intimidated, to be
19 real honest. I am a computer science teacher. I teach at
20 Macon Area Career and Technical Center, we call MACTEC
21 because it's way too long to say and I teach mainly
22 juniors and seniors computer programming.

23 I was asked five years ago to put a program
24 together to do that. We are very lucky in that we have an
25 IT outsourcing company across the street from our school.

1 And so part of our putting together a program was that I
2 went and actually worked with them in helping them develop
3 part of their curriculum, okay?

4 They take people from the rural area that have
5 no computer experience and in eight weeks teach them a
6 boot camp and then they take the top of that class and put
7 to work in their company. So one of my big concerns as a
8 teacher, as an instructor, is about half of my students go
9 directly to work out of high school and the other half
10 then go to college.

11 So one of my concerns is one of the trends
12 nationwide is to turn computer science at the high school
13 level, at least, into AP courses, which is great for
14 people who are going to go to college, but I would tell
15 you I teach students every day who will never go to
16 college, that graduate from my program, that step out with
17 a high school degree and make 26 to \$30,000 a year in
18 their first year or two of -- out of high school because
19 of the skills that we're giving them.

20 And so what I did was I tried to give them real
21 world skills, not concentrating so much on what they need
22 in college because what I have found is -- and this is
23 what most college professors tell me, is the students I'm
24 sending them are one year, two years ahead of everybody
25 else that comes into the computer science programs.

1 I just had a student who graduated from high
2 school, went to work across the street at this IT company,
3 worked for two years and with his high school diploma, was
4 offered a \$65,000-a-year job in St. Louis to do data. I
5 have a student who, for all intents and purposes,
6 struggled very much in school, went out, got a job
7 straight out of high school, one year in my program, came
8 back and said, "Mr. Wilson, I'm so excited, I'm making
9 more than my mom." Now, his mom worked two jobs and she
10 worked really hard to get him through high school and it
11 is so exciting.

12 I had two students, both of them graduated with
13 their associate's degrees this year and they are making
14 \$70,000 a year. They're making a lot more than their
15 teacher. And there is such an opportunity if we can give
16 our students real world skills, they can go out -- we have
17 a chance to have hundreds and thousands of students that
18 have great careers, but I don't want us to pigeonhole it
19 as a college only -- I asked my students, I just polled
20 mine, and I understand I have a very small rural
21 classroom. Half my kids said they would not have taken my
22 class if it had an AP in front of it.

23 And so maybe this -- I'm sure this is a concern
24 you already have, but I went out and actually talked to
25 Oracle Academy. We're an Oracle Academy site now as far

1 as teaching. They were so excited what we're doing in our
2 little school in Macon, Missouri that they did an article
3 for their national Oracle Academy website. The last time
4 I checked, we were in between an article on Mumbai and a
5 new program they were starting in the Philippines. Now, I
6 don't think Macon has been mentioned very much between
7 Mumbai and the Philippines, but it was on their website.

8 I think there's a huge opportunity, especially
9 when we're partnering with our local companies, and so I
10 just want to let you know, we're very excited about the
11 idea of having computer science standards, but we're
12 hoping that it is aimed at those students who would not
13 necessarily be college students, those students who it
14 could change their life.

15 PRESIDENT SHIELDS: Excellent. Questions? I
16 mean, I've heard the president of LaunchCode talk about
17 very similar -- what you're talking about, so we
18 appreciate that. Thank you. Anyone else wishing to
19 testify on the standards? Okay. So with that, we will
20 conclude the hearing.

21 One of the questions a board member asked before
22 this hearing was that how does this come about. So last
23 year the legislature passed in their special session House
24 Bill 3 which mandated that computer science be included in
25 the academic standards. The bill also said computer

1 science can replace a math course, I believe, or science
2 in that bill, and so that's how this came about, how this
3 got added. The idea is to have the standards in place
4 before the beginning of the next school year, '19-'20
5 school year, which is also mandated by the legislation.

6 Okay. We'll also -- I had it. So we will open
7 the public comment period today. That will go through
8 Monday, March 11. And you can access that through our
9 website, the DESE.MO.gov. So anything else I need to add?

10 COMMISSIONER VANDEVEN: No, that's good. Thank
11 you.

12 PRESIDENT SHIELDS: With that, we'll conclude
13 the hearing. Thank you.

14 (Proceedings concluded at 9:03 A.M.)

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CERTIFICATE OF REPORTER

I, Julie K. Kearns, Certified Court Reporter (MO), Certified Shorthand Reporter (IL), Registered Professional Reporter and Certified Realtime Reporter within and for the State of Missouri, do hereby certify that I was personally present at the proceedings had in the above-entitled cause at the time and place set forth in the caption sheet thereof; that I then and there took down in Stenotype the proceedings had; and that the foregoing is a true and correct transcript of such Stenotype notes so made at such time and place.

Julie K. Kearns, CCR #993, CSR, RPR, CRR

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