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Continuing the Quest for the Safest Racing Surface: The Natural Racing Surface

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Mr. Steve Byk: Kentucky, and in the capacity as an educator or as the industry's leading expert on surfaces, really is the go-to so often when these topics are broached, and I wanna turn to Mick to get it started with some introductory comments.

Dr. Mick Peterson: All right.

I've got a short presentation here, and the idea is to kind of get things started — oops, let's go back.

There we go. I wanna mirror, once again, the comments we heard earlier where we talked about — starting with the horse when we talk about social license to operate. When we talk about the surfaces, we're — our goal is to reduce musculoskeletal disease in the broadest sense.

The way we do that is to have consistency of the surface and optimized biomechanics, and we need both of those for the surface.

Let me be clear before we even start. We have one known factor associated with racing surfaces, and that is that injury rates on synthetic tracks are consistently lower than those on either dirt or turf.

Synthetic tracks are insensitive to moisture, and so the weather factors that we know are important on dirt and turf are not a factor on synthetic surfaces. You see the low variation from year to year on synthetic surfaces.

The feature that we see in both dirt and turf, though, is large variation from year to year.

Now, these are from race tracks that are established. They typically have the same staff. They have the same people doing — using the same methods to maintain the surface.

What can be varying between year and year? Year-over-year variation — it almost has to be weather and the response to weather.

Our goal as an industry, to protect the horse and to expand and maintain the industry, has to make every year a good year, regardless of the weather.

The Maintenance Quality System was developed through collaboration — and it built out of a series of events in the industry, and it is a multi-stage process.

It starts out with documenting the design of the track — the transitions, the composition, the equipment that's used to maintain the track.

Prior to every race meet, the tracks participating in the Maintenance Quality System do a series of tests to show that the track is ready for the race meet — biomechanical testing, ground penetrating radar — the goal of this pre-meet testing is to show that if the track is properly maintained, that the track can provide a safe and consistent surface for racing.

The third step, though, in the Maintenance Quality System, is every day, that track has to be ready for racing.

There is a weather station on site at each of the tracks.

Every bit of maintenance that's done on the track is documented, and the cushion depth and moisture are measured every day prior to racing.

What we're doing in this process is we're making sure that the things that vary on a short time horizon — when we know the track was ready for the race meet, the

things that vary on a short time horizon are prepared every day, getting ready for racing.

Now, we're not there yet. All you have to do is look at the industry, and you cannot be complacent, and that's one message that we've heard through every presentation we've heard — listened to today, is we can't be complacent.

Looking even at the weather station — the question came up recently at one of the racetracks — well, what we really care about is the wind speed in the front stretch, but there are trees.

We have multiple locations we care about the wind speed because of evaporation differences on the track, so what do we need? We need distributed sensors.

One weather station isn't enough. We need to have weather stations talking to weather stations, distributed around the track.

We're developing new measurement tools. One of the big challenges for the tracks like the NYRA or Keeneland — the tracks that do everything right, right now — these tracks put an inordinate amount of time and effort into measuring the cushion and measuring the moisture every day.

The other challenge is, that the way we do it right now is sensitive to the person doing it and the care that's taken. Beginning to automate these measurements — developing new tools for that. Finally, automating the moisture content because if we do it once a day, we get a good idea — we're starting out the race card with the right moisture and with the right cushion depth, but what do we care about?

We care about every horse and every rider that's on that track has a consistent moisture, has a consistent cushion, and we're giving them the track they need.

The other thing that we're looking at more and more — it becomes more and more critical to this industry — is turf research.

We see this growth in turf racing in North America, which has forced every race track to reassess how their resources are allocated between their main track and their turf track, which is rapidly becoming the main track in a lot of the racing jurisdictions.

That's not enough. Having the consistency isn't enough. We have to have the performance because the horse and rider — and we care about what the horse and riders feel.

We also have to have the safety, and so what we've developed is five functional parameters that we measure and we maintain — cushioning, firmness, grip, responsiveness, and consistency.

You'll notice I repeat consistency over and over because right now, I have not found — anywhere in the industry — an advocate for an inconsistent surface.

If we look at the phases of the gate, initially, the hoof is moving at a very high rate of speed and hits the ground. It then stops, and there's a secondary impact where the weight of the horse is transferred onto the hoof.

The hoof is stationary a portion of the time, the horse is going 35 or 40 miles an hour, so that means that the hoof has to go 70 miles an hour, stop, then go 70 miles an hour and stop.

Otherwise, they leave the hoof behind on the track. Bad outcome. Finally, there's breakover, which is one of the most challenging aspects of this, and I'm not gonna mention the issues with breakover and developing a biomechanically-optimized surface.

This initial loading, however, may be critical. The initial contact, this cushioning, is required to slow the hoof after it's been moving at a high speed.

A secondary impact where the fetlock rotates down is used to support the leg and return energy to the horse. The surfaces have adapted.

If you think about that cushion — the harrowed cushion over the top, that's harrowed-top is slowing the hoof.

The compacted layer surface — lower surface that's underneath the harrowed cushion provides the support and traction for the horse as they're propelling themselves forward.

These same layers are the natural layers that are developed in a turf course, but obviously, this becomes crucial that we understand the root system and the development of the root system in these turf courses and also reduce turf variability.

What we know is that the biomechanics — just like the safety record between turf, dirt, and synthetic are different — and if this works well, you can see.

What we see, is we see very different patterns. The red and the blue are the horizontal and vertical displacement. We see very different patterns of horizontal and vertical displacement in the dirt and the turf and the synthetic.

What we really need to understand is as we move forward, we need to develop a surface with the consistency of synthetics and then look at the biomechanics of the turf or possibly the dirt and think about what that means.

We understand at this point that the consistency — using tools like the Maintenance Quality System — is our best effort that we can make.

Thanks.

Mr. Steve Byk: I think both Dan and Glen can react to that. Glen, why don't you start, and talk about the challenges of this concept and the practice — the execution, particularly difficult at NYRA where you've got three different facilities with multiple courses, training tracks, et cetera, and how the modern race track operation is dealing with all of these issues?

Mr. Glen Kozak: Sure. I think, as Mick pointed out, the consistency is what just gets repeated over and over on what we look for at all of our racetracks.

With what Mick and the testing lab have been able to provide with this documentation of the moisture content, the moisture measurements, the depth of cushion, the type of analysis that's done on the cushion, above and beyond what the standard practice has been for Mick with the ground-penetrating radar or the mechanical hoof tester — those are all tools that we use at three of our locations.

To your point, Steve, it — at one time of the year, we've got 13 different tracks that are operating. Obviously, the staff that I have and that the New York Racing Association has — it certainly helps to be able to quantify that information and to be able to monitor so it's not somebody going out and picking up a handful of dirt as they did 10 or 15 years ago and saying that, "Well, I think it needs a load of water," or, "I think we can back-rate this track the way it is."

You're using the tools and the instruments now to help with those decisions, and it's the cataloging of that information where year over year over year, you're able to see how different tracks react, how the components or the additives have worked.

Having the tracks try and be as consistent as each of our tracks with the Belmont training track being an all-year training track that we use through the wintertime

in addition to the new main track at Aqueduct that's used for spring, fall, and winter racing, to be able to complement one track with a surface that's very consistent to the other is something that we strive to do.

That was one of the purposes of rebuilding the training track four years ago and then rebuilding the main track at Aqueduct using all the same components and the monitoring and the data collection for each of those surfaces.

Mr. Steve Byk: One follow up — and one of the things that I picked up on in Mick's presentation — the elements of — essentially, the trainees and the runners in the afternoons and the importance of the interplay between the horseman and you.

Knowing and hearing what they're feeling out there and those elements — the cushion, the firmness, the grip, the responsiveness, and the consistency — we've discussed, in fact, on-air the last couple of days in sort of general terms with a lot of the challenges currently throughout the game — the communication factor and being able to respond quickly, and essentially, a small margin of error in terms of adjusting when you have to.

Mr. Glen Kozak: For sure, but I think the one thing is to be able to have that information so it's not just a knee-jerk reaction.

This morning, five minutes after 5:00, I get a text from one trainer, "The training track seems like it's real deep from the eighth pole to the finish line. My horses are very slow."

It wasn't 15 minutes later, I get another text, "Don't you touch the track. Everything is fine." The communication, I think, just as you say, is critical, but having, again, the science behind it to be able to say that not only is the depth consistent on the training track from the eighth pole to the finish line, but the three-eighths is the same, as well as the moisture content.

We all know different tracks in the wintertime react differently than what the summertime does. We had to shut the Belmont main track down a week early because of the shadow. The front stretch was soup and was a sloppy track. The rest of the track, you could harrow.

As you pointed out — and I should say, as Mick pointed out, with the different weather stations and the sensors that are available, you have to know the idiosyncrasies of the track to know there's certain times where we don't apply water on the main track down on the front stretch.

At Aqueduct, the parking garage affects the quarter pole and the three-eighths turn. The far turn with the wind coming off of the parking lot — we get snow drifts there, so we triple snow fence the turf courses. Each track has its own areas that it's not a one-size-fits-all application for the maintenance in how you respond or react to these things.

Going back to the initial question — having that information to be able to say the TDR probe shows this at 16.2 percent moisture — it's something that we know what our moisture content — what we strive for — how we can adjust it, and then also, the times of the year when you can add the clay to the track to be able to support summer racing or retention of moisture compared to the wintertime when we're running on 20 degrees and a freeze-dried track.

We have to have the ability to compensate the additives that we put to those tracks for that time of the year. That's where the testing with the Racing Testing Laboratory has been so critical for us, to be able to get that real-time information in a short amount of time.

Whether we're adding 80 tons of clay, whether we're putting 600 tons of sand on the training track as well as Aqueduct.

These are all the — every day, as Mick pointed out, the weather impacts what we do and how the tracks react. You know. Your text said the other day, "Are we on the turf?" The turf was still frozen, and we had an inch and a half of snow three days before, but those are the kind of things where communication with the horseman, with the racing office — to be able to have a plan so you can have a safe and consistent surface is critical.

Mr. Steve Byk: Dan, talk a little bit about your work and your experience. You've touched on virtually every kind of oval, and what challenges you've seen and how you've reacted to them.

Mr. Dan Coon: Well, I gotta say these two guys are doing heavy lifting here, but I would like to preface my comments by saying horsemen resist change.

I'm not here to change anybody's mind.

I'm not here to find fault with the way it's been done over the past, because it's worked for a long, long time.

I'm here to suggest a few things that might work going forward.

That said, we've all — everybody in this room has witnessed many Thoroughbred starts from a stationary starting gate.

These Thoroughbreds come out four or five strides and they're at full speed. The point I'm trying to make is I notice there's a big connection between the starters and the assistant starters. These are skilled horsemen that are adept at handling horses in what might be, at times, a dangerous situation.

In some states, they're required to wear helmets and vests. They school horses in the morning that, indirectly, gives them even more experience. They have notes on the horses that might act up. These are skilled people.

Wouldn't it be remarkable if we could take that level of expertise and find the track guys — guys that operate the equipment — and they would be as selected as the starters?

In some cases, there are track equipment operators that have that level of skill and dedication, but I think most track superintendents will tell you, finding that type of people is difficult — not the guys that just wanna hit the clock and go home, but the type of guys that take pride in knowing how important their job is and how it relates to equine and human safety.

Roy Smith at Indiana Grand started a track superintendent's field day 20 years ago. Last year, it was hosted at Charlestown. Next year, it's hosted at Remington Park.

The idea was to get together, share ideas, and listen to experts like Mick and Glen talk. It was also meant to attract new people to the profession. You look around the room at these events, it's populated with older guys like me with gray hair. It's attended mostly by guys that are subsidized by their track that they work for.

The ones that are missing are the young guys who can't afford to attend. How do you expect younger professionals to take an interest when they can make more money on a construction site?

Wouldn't it be wise to attract more younger, passionate, talented people to the profession? I don't know anybody who would be willing to take a cut in pay and more abuse to become a track superintendent.

I do know some very talented people that have walked away.

We've been on this all day about consistency, and it's about moisture — one of the issues is moisture content.

Mick'll tell you — Glen will tell you — when a track becomes sloppy from a two-day rain or one-day rain, it might be off, but you can bet it's uniform. It's wet all the way across. Uniform and consistent — that's difficult to achieve every day.

On a fast track, the challenge is to get the correct amount of moisture where it belongs each race. You said about the shadows from the parking garage, the trees, the grandstand, variations in wind temperature, sun exposure, shade from a

safety rail, a variety of other conditions. How 'bout two water trucks at the same time operated by two different operators?

I build water trucks — Churchill, Keeneland, Golf Street, Canterbury, Lone Star, and others — these things are not cheap, and they weigh in at over 50,000 pounds loaded.

I don't care how great the truck is or who built it. We're at the mercy of the operator. If he waters the track the same every race without regard for the change in conditions that I just mentioned and that they just mentioned, it can't be consistent. It has to do with the shade and — you think about the turf course — we water the turf course with semicircular patterns.

Either they overlap or they miss, and that's a condition that gets worse on a windy day — all those zones. It's tough to make it even.

Another thought is reverse-direction training — repetitive-stress injuries. This might be a good excuse to try training in opposing directions on occasion.

Now, I'm not a trainer, and I find myself suggesting things that would benefit the track superintendent. I'd like to hear from vets and trainers on this one. I know it's Keeneland — they groom their track in a clockwise direction. Might make sense.

The morning break — we all know where the trainers have a lot of work to do in the morning and spending more time prepping the track. During a break or breaks is a tough sell. One look at a track after a couple of horses hit it would convince anybody one pass with three tractors might not be enough.

Wouldn't it make sense to spend more time resurfacing the tracks during the morning break, if it's possible?

I'm still going.

Mr. Steve Byk: All right, 'cause there's a couple of things to interject, and with the benefit of Glen, that's an interesting topic.

Glen, the — not restrictions, but the format of the way the race day unfolds — are there circumstances where you could use an extra 15 minutes to go around again, or that would basically change — and I know there's other pressures in terms of the scheduling of races and simulcast schedules, but there's gotta be occasions where the change over the course of the day is — puts some pressure on you.

Mr. Glen Kozak: I'm sure you've seen it at Saratoga where we've got a rainstorm that's coming through or projected potential heavy rainfall where —

we've got the luxury — we have great communication with the stewards where we'll take the extra 11 minutes to be able to prep the track.

As we all saw last year, we got caught on a turf race and got three-quarters of an inch of rain while the horses were finishing the turf race and the tractors couldn't get around fast enough, and the back stretch wasn't consistent.

We took 45 minutes to try and get the track right, and the front stretch was perfect because that's where the tractors went around, but the back stretch wasn't consistent, and we had to cancel.

As far as timing and everything, I think a lot of that goes into just the planning. An early post at Aqueduct — we shut training down early to be able to get out there to grade, to water, to do what we need to on the track.

Throughout the card, I think the safety is always the most critical thing for us, not a post time.

If we end up getting on top of another post time, unfortunately, mutuels has to work that out. We can't worry about that with a tractor.

If there's an incident on the track or something takes place — a loose horse or whatever — we have to be able to adjust.

Again, it's just having the crew that's ready to do whatever needs to be done, having the equipment that's available, whether it is a sealed track or you're opening it up where it might take a little bit longer, where just as you say, we have to go around the track twice because after rolling the track the first time, the harrows didn't cut into it the correct way.

I have no problem calling the stewards and saying—or Brian calling and saying that we need another 10 minutes to get around the track and get it prepped correctly. We're not gonna push the maintenance of the track to be able to try and hit a post time.

Mr. Steve Byk: Dan, also, when you talk about the track getting wet and water getting into the track, we had that incident over the summer where you got caught, where the track was open and took water.

I'd love to ask the three of you, at what point was the decision made that we were better off sealing tracks in advance of storms?

That includes even after racing, at the end of a race day, and with the potential for rain overnight. When was it decided that it was terrible to have a wet track that took a couple of days to dry out?

Mr. Glen Kozak: Well, I think some of the maintenance that — to try and have something that's consistent like that — you look at a North American track that has silt and clay and sand, then you go over — whether it's Japan or Korea — they don't have rollers. They don't have floats.

They use brooms to groom the track. The consistency of having our jocks go over a track that has half an inch of rain that's unsealed — they've gotten accustomed to a certain condition that they will ride under.

To go over a track, as you say, when you get caught with it being open and not having any body to it, there's no way that the current jockey colony would ride after what they've been — with what they've become accustomed to.

If you go overseas, you'll see a surface that will actually have a corn broom or — to groom the top surface. If you put your foot down through it, you go right to the base.

Again, those jocks don't come back muddy. There's no silt. There's no clay in the tracks. It's a whole different environment on what they're accustomed to.

To go through and have a track — we try and prep for it. At any of our tracks, we'll roll the tracks to keep the moisture in it, so in the morning, if we have to add a load of water or put something to the track in the morning, we're not chasing a track with five or six loads of water in the morning in the summertime.

You'll see at Saratoga, the tracks are rolled, they're sealed, just to lock the moisture in.

There's times in the wintertime or in the fall here where a track will stay open, just to dry it out. Again, we're always working with what the weather is giving us, but to be able to roll a track and have it respond and have it recover from a rain situation, you're trying to get back to a fast track as quick as possible. That is the ultimate goal, yes.

Dr. Mick Peterson: If I could address that, too, the purpose of the top cushion is to decelerate the hoof. If you think about the loading — the hoof is coming down at a very high rate of speed and you're slowing it down.

What happens with sand is if it's very dry or very wet, it'll flow very easily. What you're doing is you're taking the padding off of the top surface of the track so that the hoof will impact.

You'd even see this in speeds — there was a paper that I don't think it was ever published that actually showed on Japanese tracks where if you got it sufficiently wet, it got fast again 'cause they were just running on the limestone base.

The safety aspect for that, as well as the impact on the career of the horse, is quite significant. We need to keep the moisture — we need to keep that cushion intact.

The reason it's floated or sealed is to keep from getting too much water in it. If we — if the water goes into it, then it'll flow and they'll be just running on the hard panel.

Mr. Steve Byk: Then also — and, Dan, you could address to this, too — if I could connect the dots, that if that happens, it's tougher for track maintenance to reorient the track from the crown to the rail and to then have a consistent surface post-incident.

Mr. Dan Coon: It's all about grading. I mean, it's gotta come back. You know where it's gonna run. The reality of it is some of these tracks were installed 50 years ago. The rail hadn't moved. It's the same configuration.

I'll say something about elevated curves. All the mixed graphics showed a flat track, so I assumed that was a stretch versus a curve.

My point is this. There seems to be no clear standard recommendation on elevated curves. I'll give you an example.

Colonial Downs has a 560-foot radius and it's elevated to 4.5 percent.

Hawthorne Race Course in Chicago has a 400-foot radius that's elevated the same. One of the harness tracks we built is Rosecroft Raceway. It has a 300-foot radius — way shorter — and it's elevated to 14 percent. Remember, the Thoroughbreds are traveling at almost 40 miles an hour, and the laws of physics have to apply.

Percentage of slope is easy to compute. Four percent is a four percent rise over 100 feet. Four percent is a one-foot rise over 25 feet, and I pulled a string right there. That's four percent. Twice that is eight percent.

Half that is two percent. That's four percent, and I suggest that most Thoroughbred tracks might be elevated in the curves to four percent. The criteria for cross slope would be speed of the vehicle, radius of the curve, and the center of gravity—where that vehicle carries the load. The jock is above the center of gravity, and that's just something that's not gonna change.

I think we can all agree that bigger is better when it comes to curves.

We can argue all day on what slope is appropriate for a given track, but here are two undisputable facts.

An elevated curve will drain better than a flat curve. An elevated curve is going to require more maintenance. It's going to require more grading.

Track experts as far back as Joe King, my father, have always had a fear — and rightfully so — that track superintendents might not be able to maintain a dirt track with the appropriate slope.

I agree, to a certain extent.

Now, with the advent of modern equipment, perhaps automated grading — graders that are guided by GPS and lasers — we might be able to push the envelope a little bit farther.

Again, we're back to the skill level of the operators that we talked about earlier. If we could agree with some proof — and that goes to Mick — with some proof that elevated curves contribute to less injuries and lameness and competitive racing, we should be equipped and motivated to take every step possible to keep it.

Mr. Steve Byk: Mick, jump in, because this is a terrific question, and it rarely has come up in terms of the slope and the grading — particularly on turns — and it's just logical that if horses are being forced to corner more aggressively

Pimlico famously — it's not the tight turns, it's the grading — it's a flat turn— flatish. That's gotta put more pressure on ankles and on joints, no?

Dr. Mick Peterson: To first address what I did and didn't cover, the first slide there — the second slide there actually showed the grades associated with one of the racetracks that we do — we work with.

One of the stage — the first stage of the Maintenance Quality System is to document the design. The design is the crossfall as well as the banking.

There's two types of banking that are used regionally in the United States for thoroughbred tracks. There's the transition banking and there's the apex banking.

The transition banking starts 100 yards before the turn and maintains the maximum banking through the middle half of the turn. Apex banking starts the banking at the beginning of the turn and hits its maximum grade at only at the apex of the turn — the middle of the turn — and then transitions back.

Those two are — were historically somewhat randomly distributed around the country, but one of the things that came out of the synthetic designs was GRW — an engineering firm in Lexington — started working with a lot of race tracks, and it's been interesting.

They've expanded their horizons quite widely. They suddenly started working in New York, and we were even talking about Alberta at one point.

Now, we're getting to the point where we have a standard base criteria, and that's a part of the maintenance quality system to measure that.

What we do not know is optimal banking, and the optimal banking is dependent — and there was a study done at Woodbine a number of years that has not been published, but that — through no fault of mine — that actually showed that on synthetic and turf, we're almost evenly distributing the load between the left and the right legs.

You also see in — the Equine Injury Database is actually a huge tool for this because we can actually see the laterality of fractures.

The laterality of fractures is primarily associated with dirt courses. That's, again, ongoing work that is so critical to this.

Evidence-based design and evidence-based safety for the industry is absolutely critical, and the Equine Injury Database, the Maintenance Quality System, the initiatives that are being made for consistent documentation of how we do things in the industry — that's how we're gonna get better because we will — we'll understand what the risks are.

Mr. Dan Coon: He just made a case for a straight track.

[Laughter]

Dr. Mick Peterson: Well, I actually heard that the first speaker today, Mr. McIngvale, and I think that actually, what we're going to probably find is that — I'm willing to hypothesize at this point that turning itself is an exposure variable for the horse which will not only affect design of tracks but more importantly, I think it'll affect training, having this information and providing this information and getting it in the hands of people who can do something to help protect the horse.

Mr. Steve Byk: This is an area that I'm gonna guess that most of us are hearing this discussion, really, for the first time, in terms of — right, in terms of turns and their effect, because I have — I discuss a lot of things on the air, and this has not been covered, so it's great.

Mr. Dan Coon: Let me say this. There are no harness tracks that are flat, and there are no harness tracks with a rail. Can I say something about the base?

Mr. Steve Byk: Yeah. Yeah.

Mr. Dan Coon: The foundation that supports a cushion, and therefore the horse, is the base.

The synthetic track specified an asphalt base, one that drained vertically. Some of the tracks that were converted back from synthetic to dirt did not remove the porous asphalt layer.

They then covered it with an aggregate to create the four percent slope. Removing the cushion annually to inspect the base is not only a good idea but might even be considered routine.

Hawthorne Race Course does this twice a year to accommodate the standardbreds.

I noticed Prairie Meadows and Turf Paradise go through this exercise whenever they host motorcycle races.

When a Standardbred horse goes 30 miles per hour, they, too, will be quick to find any irregularity in the base. When a Thoroughbred travels 40 miles an hour, they, too, will be able to find any irregularity in the base.

I can assure you, when a motorcycle exceeds 100 miles an hour down the straightaway and they're turning laps in 40 seconds, they'll find an irregularity in the base.

Now, I can't recommend promoting a motorcycle race on a horse track, but it might be an excuse to remove the cushion, remove the pad, regrade the base to perfection, and move forward.

I also believe that piling more sand on top to enhance the cushion might not have the same effect as milling and checking the base regularly. I think the cushion — the best cushion in the world could be compromised by an average base.

Mr. Steve Byk: I can refer back to visits we had with John Nerud, and Nerud — whenever there was a spade of injuries, Nerud's response was always fissures in the base, soft spots, Glen, and that for him, was always the first culprit. Of course, he spent much of his career trying to improve surfaces and was an early experimenter with synthetic tracks.

Dr. Mick Peterson: Really, the base issues are why we've — as a part of the Maintenance Quality System, we use ground-penetrating radar between — before every race meet.

What that does is — if any of you watch the shows with the forensic people looking for the dead bodies, it's the same technology, except in this case, we're looking — well, I guess Maryland and New York, maybe we're looking for dead bodies, but the — what we're looking for is consistent compaction of the subsurface layers.

What we'll see is there are times where you'll see where damage was done.

It's very difficult not to damage bases in the winter months when there's heavy — you have to grade them — or you have to air them all night long, but that is — I think that's absolutely critical to inspect that every year — or every race meet.

Mr. Steve Byk: I'd love to — you hinted at another topic that I absolutely didn't wanna adjourn without bringing up, and one of the discussion points we heard throughout this year and continue to, given even as of the last 48 hours where Dennis Moore is actually lifting the cushion the next couple of days — no training Wednesday and Thursday at Santa Anita, and then they'll resume time to work on Saturday, but he's re-fluffing and reworking the cushion.

There's been this — I'm not gonna say panacea, but the suggestion and the move with the concept that deeper equals safer and that slower equals safer, and I would love for each of you to address it because it seems not to make any sense.

If you've got horses that are harboring vulnerabilities, a deep, heavy, slow surface that the have to slog through and work, to me, would only potentially exploit their vulnerabilities as opposed to a tighter surface that's easier to get over.

None of you are Dr. Parkin, but I am curious how this deeper equals safer became a mantra.

Dr. Mick Peterson: We heard it at Santa Anita where they kept piling sand on to make it deeper. I wasn't there. I can't say it was a good idea or a bad idea, but they said it made it slower.

I have a picture here that we could put up. When we got there, this — when we got done doing Mahoning Valley, I used a milling machine to modify the base, and it took a rock-hard base — we cut four inches.

It come up six, and then you packed it back, and it can't be as hard. Maybe that's a compromise.

Mr. Glen Kozak: Again, as far as what you just — I'm certainly not a veterinarian, nor do I know anything with the injuries that take place — I think it's difficult to say something like looking for a deeper, safer surface, but we don't have the luxury of December to March and having an 80-degree temperature where we're training at Belmont or Aqueduct.

When the track is 20 degrees and the cushion is freeze-dried and there's no moisture content in it whatsoever and the track is fluffed up to five and a half or six inches, again, you don't see — and maybe Mick can chime in on the types of injuries — but you don't see a spat of injuries because of a deeper, drier surface.

Again, Mother Nature dictates what we can do in that timeframe — when we can put water on it, when the sun's up and it's above 26 degrees and we've got some salt in the track, we're able to do that, but they're training over a deep, dry surface in the wintertime for training, and they've been doing it for how many years in New York.

I think it's difficult to say that you're trying to set something up or even with the tracks — Aqueduct being slower in the wintertime — it also deals with the components of the surface.

When you have a clay that expands when it gets cold, it is a deeper track. The sun comes out or if the track is freeze-dried — you've seen it. We'll measure it in the morning. It's five inches. The sun comes out and it's 32 degrees and you've got three and three-quarter inches after whatever moisture melts out of it. That's the color change that you see that takes place.

We're always looking for — no matter what the moisture content is, that it's graded evenly and consistent around, and then it's not an issue is what certain people would say as far as a speed-favoring track or different points in the track 'cause I mentioned earlier with the trainer calling about a certain spot on the track that might be heavy or quicker. That's certainly not something that we're striving for.

Mr. Steve Byk: Mick, final thoughts on the topic?

Dr. Mick Peterson: I think it is absolutely critical to maintain a consistent cushion. The composition of the cushion matters, and that, on a dirt course, is dependent on the moisture content.

I can tell you that that's a myth that there was extra sand dumped on the Santa Anita track. I mean, I was there, and I have the data, and it was taken every day. You can go back and say; do we need better data? Yeah. I'm always game for better data.

What I think we need is we need more information. We need to understand what we need to do to protect the horse.

We need to understand this consistency.

The consistency is going to be weather-dependent. We're going to have to be able to answer transparently to a broader audience of stakeholders.

We're doing everything we can to protect the horse and rider. If that takes changes in the tracks we have, changes in the maintenance or more labor, that's what it's gonna take.

We've heard consistently through the day that there's a clear message in horse racing, and that's gotta be it.

Mr. Steve Byk: Well said. I also wanted to slip in one other question, and I don't wanna — again, I don't wanna let this slide by.

The danger and the difficulty of meet ending, meet beginning — movement from one part of the country or one oval on a circuit to another. That includes, of course, at the end of a certain period with Arlington and Presque Isle ending — Woodbine not far behind — and then horses moving — some to Turfway, so they're moving from synthetic to synthetic, but plenty of others — Presque Isle ends, and horses are running at Keeneland on the dirt, and then at Churchill.

Do you agree or not that that seems to be as dangerous a period — the transition periods? Certainly, the move down to Del Mar just this past fall — the incidents — the only incidents they ended up having during this most recent meet came within days of the switch from Santa Anita down to Del Mar.

Dr. Mick Peterson: I should defer to Glen partly on this because Glen's model is probably the closest that we have and the — his responsibility and his management and the nearly-identical — I guess as close as we can physically have them — geometry, to speak to Dan's point; composition, base, providing everything we can on the race track surface and to — consistent as possible.

The success at NYRA, then, in Southern California, I would contend we — has been duplicated.

Del Mar — I guess it was three years ago under Dennis' leadership, undertook a large renovation. That renovation had a significant impact on catastrophic injuries. What they were doing was they matched the turns — the transitions in the turns were matched to Santa Anita.

The sub-base — there's a different design of track in California that's used because of the climate. The sub-base, which is quite far down, was modified and matched identically to the Santa Anita surface with the decomposed granite that was put down. That's had a significant influence.

Now, of course, the beginning of the fall meet — the question there is I don't know off the top of my head where the horses had come from or their history, and that's the question.

We're not looking — Southern California looks like a closed community, pretty much, but certainly there's horses coming from other — outside California.

Mr., Steve Byk: The Ship & Win — with the Ship & Win where they encourage horses from outside the market.

Dr. Mick Peterson: I think there is, and in the absence of scientifically-defensible data on banking, I've always said, "Match your neighbors."

Look at where you're shipping in from and match the geometry. That's what Woodbine has done. That's what Southern California has done, and then fortunately, New York can do it because they're matching themselves, but this is — I think this is addressable.

There's another issue with the seasonal meets that — on protocols on opening up the track, especially with dirt tracks, but it falls under that same category.

Mr. Steve Byk: Glen?

Mr. Glen Kozak: I think just to parrot what Mick had said, we're fortunate to have the two tracks that are consistent, but I think also, in the mid-Atlantic region, when you see a horse shipping in from Parx , you see a horse shipping in from Monmouth or Delaware or Laurel — they're all limestone-based tracks.

The one luxury that we do have at Belmont is we've got three different surfaces to train on. Now, the main track is closed, but come April — you see it.

Certain trainers will only train on the main track. Certain trainers will only be on the training track.

One of the points to get the two winter tracks consistent was just for that reason, that over 80 percent of our shippers that go to Aqueduct are based at Belmont, so to be able to have those horses that race at Aqueduct ship from the same surface at Belmont is one of the key things for us.

Mr. Steve Byk: Dan?

Mr. Dan Coon: I'll agree with Mick. Consistency from track to track makes a lot of sense, but I violated it. I elevated a track in Dubai to eight percent, and it had 600-foot turns, and there's one in Lethbridge, Alberta that's elevated to 12 percent, so we're all over the board.

Mr. Steve Byk: Just listening to these snippets of experience — and you've got three people that are leaders in their respective fields and for the industry.

The one message out here on this topic is this is a 24/7 challenge, and it just further demonstrates how taxing and what a monumental challenge that we face as an industry in dealing with this.

The vigilance extends to the last blade of grass and the last grain of sand.

Thanks very much. Appreciate everybody, and thanks. If anybody has questions, I suppose we should send it out there, too, right? Do we have time? All right.

Seek them out.

Mr. Glen Kozak: Perfect.