Flagstick Pace Tool

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Vice President of Product Development, Spectrum Technologies
Recommendation #1: In order to have control over pace of play, we must be measuring and controlling the relevant parameters
Check Point Pace of Play

<table>
<thead>
<tr>
<th>Tee #1 Starting at 12:45 pm</th>
<th>Adjusted Start or Delay</th>
<th>Expected Finish</th>
<th>Previous - 14 Minutes</th>
<th>Actual Finish Time</th>
<th>= I - From Expected (Adjust.)</th>
<th>= I - 14 Min. from Previous</th>
<th>Actions, Observations or Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Toby Tree (40)</td>
<td></td>
<td></td>
<td>5:28</td>
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</tr>
<tr>
<td>15</td>
<td>Theo Humphreys (41)</td>
<td></td>
<td></td>
<td>5:38</td>
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<tr>
<td>16</td>
<td>Cody Seal (43)</td>
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<td>5:48</td>
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<tr>
<td>17</td>
<td>Alex Talty (46)</td>
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<td></td>
<td>5:58</td>
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<tr>
<td>18</td>
<td>Derek Stad (52)</td>
<td></td>
<td></td>
<td>6:08</td>
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<tr>
<td>19</td>
<td>Julian Bunn (64)</td>
<td></td>
<td></td>
<td>6:18</td>
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<tr>
<td>20</td>
<td>Robby Sheflin (58)</td>
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<td>6:28</td>
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<tr>
<td>21</td>
<td>Andrew Dorn (81)</td>
<td></td>
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<td>6:38</td>
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<tr>
<td>22</td>
<td>Emilio Cuadrado (86)</td>
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<td>6:58</td>
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<tr>
<td>23</td>
<td>Andrew Hans (87)</td>
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<td></td>
<td>6:46</td>
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<tr>
<td>24</td>
<td>Bradley Neal (78)</td>
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<td>7:08</td>
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<tr>
<td>25</td>
<td>Andrew Lawson (74)</td>
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<td>7:18</td>
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<tr>
<td>26</td>
<td>Dominick Foss (76)</td>
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<td>7:28</td>
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</tbody>
</table>
### Pace of Play “App”

![App Display](image)

**Officiate**

65th U.S. GIRLS’ JUNIOR CHAMPIONSHIP

Observation Summary for Tee #1 @ 8:50 am
Green, Hannah, Hamilton, Maddie Rose, Binns, Jamie

**Message for group:**
Your group is out of position and this is a warning.

**Hole Information**

- Hole #4

**Timing**

- Original Expected: 09:51:00
- Observed: 09:57:00
- Delay: 0.00 minutes

**Observation Message (from official):**

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Tool for Monitoring Pace of Play

The best way to avoid delays on the course is for facility operators to identify and clear backups before they impact other golfers on the course. The USGA has worked with Spectrum Technologies to develop a flagstick-based tool that will allow just a single person to keep track of all the golfers on the course. So if one group has trouble on a hole, the facility operator can get that group back on pace and prevent delays that would have rippled down to every subsequent group. Here is a quick look at the technology and how it helps prevent backups that decrease golfer enjoyment and add to round times.

HOW IT WORKS

1. The device records when group 1 puts the flagstick in hole after putting out.

2. Group 2 pulls out the flagstick and puts.

3. The device records when group 2 replaces the flagstick after finishing the hole.

4. The device sends the distance between the groups, called “cycle time,” to a central source computer, tablet, or smartphone.

5. If a group has a longer-than-expected “cycle time,” a marshal can get them back on track in just minutes instead of letting the delay add to the delays and playing times of the following groups on the course.
Spectrum Technologies – History

- 27 years of serving customers in over 75 countries
- Technology company specializing in weather monitoring and plant measurement
  - Specialty products
  - Decision-making tools
- 21 AE50 innovation awards – ASABE
- Expertise in agriculture, horticulture, turf, ecology, and research industries
- Ideal balance of precision, quality, and value
Spectrum Technologies, Inc.

- **Our Mission** – Turning plant measurements into information for profitable decisions

- **Our Vision** – Developing and marketing the most advanced plant measurement technologies

- **Our Goal** – Serving as a valued partner of our customers’ research or production team
FieldScout TruFirm

- Self contained, lightweight mechanism that simulates the impact of a golf ball and measures the firmness of turf and bunker sands
Radio Antenna

Processing and Communications Unit
- Mesh Radio
- GPS Receiver
- Central Processor
- LEDs
- Hall Switch (multi-function)
- Battery/Charging Options

Ferrule Sensing Unit
Key Operational Points

- Play is unaffected
- Rugged
- Long battery life ($\approx 28$ days)
- Simple, wireless charging rack
- GPS (any flag in any hole)
- Simple dashboard, any device