**Root Cause Analysis (RCA)**

**UV Exposure & Weather Tracker**

**South Skin Cancer Treatment Center of America**

**1234 Sunshine Blvd**

**Dallas, TX 75201**

**March 28, 2025**

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### **INTRODUCTION**

This section outlines the purpose and significance of the Root Cause Analysis (RCA). It explains the structured approach used to identify, document, and address the root cause of a specific issue. Additionally, it distinguishes what a root cause should and should not include.

The purpose of this RCA is to investigate the material failure that occurred during the UV Tracker fiber optic web tool project trial in the research lab. The investigation aims to uncover what happened, how it happened, and why it happened. A formal inquiry was initiated by a designated investigative team appointed by the Clinic Director. Upon completion, the team will present a list of identified root causes, which will guide corrective actions to prevent recurrence of similar issues.

To this RCA, root causes must be:

* As specific as possible
* Clearly identifiable
* Controllable or manageable

All findings and their corresponding corrective actions will directly impact the UV Tracker project. Therefore, it is essential that findings are carefully considered and formally communicated with the project team throughout the investigation process and upon its conclusion.

### **EVENT DESCRIPTION**

This section describes the specific incident that prompted the RCA. It provides a clear, detailed account of the issue, including the date, time, those involved, and the overall impact.

On Friday, June 1, 2025, at 9:18 AM, a failure occurred on web tool line #2 during a trial run of the UV Tracker fiber optic web tool. Technician Joe Smith observed that the polyethylene jacketing on the web tool was deformed as it exited the API integration module. The jacketing material displayed uneven thickness—being excessively thick in some areas and thin or torn in others—with some segments exposing the core of the web tool.

Following company protocol, Mr. Smith immediately shut down the web development line, preserved all related data on the system, and notified his supervisor, Project Sponsor Dr. Kimberly Rhodes.

This event has a direct impact on the UV Tracker project team and its stakeholders, potentially requiring changes to the project’s scope, timeline, and budget. Delays to the design, process, or production schedule could affect the planned project completion and product release dates of June 1 and June 15, 2025, respectively. All outcomes of this RCA must be formally communicated with the UV Tracker project team.

### **CHRONOLOGY OF EVENTS / TIMELINE**

The following timeline outlines key events before and after the incident. Accurate timing and detailed activities help identify how the failure occurred and provide insight into root causes:

* **9:00 AM – June 1, 2025**  
  Technician Joe Smith powers up cabling line #2 in the research lab.
* **9:02 AM – June 1, 2025**  
  Developer Shequila Sledge manually enters process data and parameters for the UV Tracker trial run.
* **9:07 AM – June 1, 2025**  
  Developer Sledge loads the web tool core material onto the feeder spool and waits for the system to acknowledge readiness.
* **9:13 AM – June 1, 2025**  
  System confirms readiness; Sledge initiates the start of the web development process.
* **9:16 AM – June 1, 2025**  
  Developer Sledge observes early deformities in the jacketing material but takes no immediate action, as some distortion is typical within the first 20–30 meters of a trial run.
* **9:18 AM – June 1, 2025**  
  Deformities persist well beyond the expected initial segment. Developer Sledge initiates the emergency shutdown and data preservation protocol.
* **9:20 AM – June 1, 2025**  
  Shutdown and data preservation are completed. Sledge immediately informs Dr. Kimberly Rhodes of the incident.
* **9:22 AM – June 1, 2025**  
  Dr. Rhodes arrives, verifies that all shutdown and data procedures were followed, interviews Sledge, reassigns technician Joe Smith, and escalates the issue to the Clinic Director.

# ****INVESTIGATIVE TEAM AND METHOD****

The investigative team for this Root Cause Analysis (RCA) was appointed by the Clinic Director, who oversees all research and development initiatives. The team members selected for this investigation bring expertise across engineering, design, and quality assurance functions:

* **Shequila Sledge** – Lead Developer and RCA Team Lead; Material Engineering Lead
* **Ashley Taylor** – Web Designer; Process Engineering Lead
* **Michael Young** – Data Engineer; Design Engineering Lead
* **Karen Lin** – Quality Assurance Specialist; QA Engineering Lead

To gather data, the team conducted interviews with employees involved in the event. Additionally, they retrieved and reviewed process logs from web development line #2, which were preserved immediately after the incident. Depending on the nature and complexity of the findings, supplementary tools such as the Ishikawa (fishbone) diagram were employed to support the analysis.

Upon determining the root cause(s) and identifying appropriate corrective actions, the results of this investigation were communicated to the UV Tracker project team. This allowed for informed updates to the project schedule, scope, and documentation. Lessons learned from this RCA will be archived for reference in future web tool development efforts to prevent recurrence of similar issues.

### **FINDINGS AND ROOT CAUSE**

Following the investigation of the UV Tracker web tool failure event on June 1, 2025, the team identified the following key findings:

1. The API integration module was operating at 400°F, below the required setting of 525°F.
2. The reduced temperature failed to sufficiently melt the polyethylene, resulting in inconsistent material distribution along the web tool.
3. Technician Joe Smith manually entered the correct temperature (525°F) but failed to click the **Submit** button. After a 10-second timeout, the system defaulted back to 400°F.
4. Developer Shequila Sledge properly executed shutdown and data preservation procedures and promptly notified her supervisor.
5. Existing production web tools use preset configuration profiles to eliminate the risk of manual entry errors. However, trial tools lacked this safeguard, requiring developers to input configuration settings manually.

**Root Cause:**  
The investigation concluded that **operator error** was the primary root cause. Specifically, failure to finalize the temperature setting due to not clicking the **Submit** button resulted in the system defaulting to an incorrect value. Additionally, the absence of pre-programmed configuration profiles for trial tools allowed the error to go undetected before the process was initiated.

### **CORRECTIVE ACTION**

To prevent this issue from recurring, the RCA team recommends the implementation of pre-configured settings for all trial web tools:

Going forward, developers will select from preloaded configuration files associated with each trial tool rather than manually entering 30+ individual settings. This approach mirrors existing practices used in production tools and eliminates the opportunity for human error during configuration.

All recommended changes will be submitted through the formal change management process to ensure alignment with project controls and to update project documentation accordingly.

**Sponsor Acceptance**

Approved by the Project Sponsor:

March 28, 2025:

<Shequila Sledge> < Head Coordinator>